UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 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 March 31, 2001

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: 0-22175

EMCORE Corporation
(Exact name of Registrant as specified in its charter)

NEW JERSEY
(State or other jurisdiction of incorporation or organization)

22-2746503
(IRS Employer Identification No.)

145 Belmont Drive
Somerset, NJ 08873
(Address of principal executive offices) (zip code)

(732) 271-9090
(Registrant's telephone number, including area code)

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:[ ]

The number of shares of the registrant's Common Stock, no par value, outstanding as of May 1, 2001 was 34,459,626.

ITEM 1. Financial Statements

EMCORE CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)
(unaudited)

<TABLE>
<CAPTION>

	Three Months Ended March 31,		Six Months Ended March 31,	
	2001	2000	2001	2000
<S>	<C>	<C>	<C>	<C>
Revenues:				
Systems-related	$32,475	$13,370	$59,260	$25,347
Materials-related	15,432	10,555	28,711	15,079
Total revenues	47,907	23,925	87,971	40,426
Cost of revenues:				
Systems-related	17,568	7,564	32,540	15,082
Materials-related	10,758	6,425	19,322	8,685
Total cost of revenues	28,326	13,989	51,862	23,767

Gross profit	19,581	9,936	36,109	16,659
Operating expenses:				
Selling, general and administrative	7,552	5,271	14,535	9,995
Goodwill amortization	103	1,098	837	2,196
Research and development	11,998	4,662	25,177	9,370
Total operating expenses	19,653	11,031	40,549	21,561
Operating loss	(72)	(1,095)	(4,440)	(4,902)
Other (income) expense:				
Interest income, net	(794)	(615)	(2,286)	(693)
Other income	(5,890)	--	(5,890)	--
Imputed warrant interest expense, non-cash	--	680	--	843
Equity in net loss of unconsolidated affiliates	3,668	3,047	7,800	5,813
Total other (income) expense	(3,016)	3,112	(376)	5,963
Net income (loss)	$2,944	($4,207)	($4,064)	($10,865)
Net income (loss) per basic share (see note 4)	$0.09	($0.14)	($0.12)	($0.39)
Net income (loss) per diluted share (see note 4)	$0.08	($0.14)	($0.12)	($0.39)

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

EMCORE CORPORATION
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	At March 31, 2001	At September 30, 2000
ASSETS	(unaudited)	
Current assets:		
Cash and cash equivalents	$16,874	$50,849
Marketable securities	11,974	50,896
Accounts receivable, net of allowance for doubtful accounts of $712 and $1,065 at March 31, 2001 and September 30, 2000, respectively	38,769	18,240
Accounts receivable, related parties	1,875	2,334
Inventories, net	43,811	30,724
Other current assets	5,245	1,829
Total current assets	118,548	154,872
Property, plant and equipment, net	117,548	69,701
Goodwill, net	2,997	734
Investments in unconsolidated affiliates	11,399	17,015
Other assets, net	5,374	1,580
Total assets	$255,866	$243,902
LIABILITIES & SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$21,326	$16,512
Accrued expenses	8,009	6,083
Advanced billings	24,609	20,278
Capital lease obligations	66	72
Other current liabilities	364	340

Total current liabilities	54,374	43,285
Capital lease obligations, net of current portion	71	75
Other liabilities	1,316	1,220
Total liabilities	55,761	44,580
Shareholders' Equity:		
Preferred stock, $.0001 par value, 5,882,352 shares authorized	--	--
Common stock, no par value, 100,000,000 shared authorized, 34,364,771 shares issued and 34,361,635 outstanding at March 31, 2001; 33,974,698 shares issued and 33,971,562 outstanding at September 30, 2000	319,698	314,780
Accumulated deficit	(112,928)	(108,864)
Notes receivable	(6,362)	(6,355)
Treasury stock	(239)	(239)
Accumulated other comprehensive loss	(64)	--
Total shareholders' equity	200,105	199,322
Total liabilities and shareholders' equity	$255,866	$243,902

</TABLE>

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

EMCORE CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

<TABLE>
<CAPTION>

	Six Months Ended March 31,	
	2001	2000
<S>	<C>	<C>
Cash flows from operating activities:		
Net loss	($4,064)	($10,865)
Adjustments to reconcile net loss to net cash (used for) provided by operating activities:		
Depreciation and amortization	8,996	7,819
Provision for doubtful accounts	228	240
Non-cash charges on warrant issuances	--	843
Deferred gain on sales to an unconsolidated affiliate	120	439
Equity in net loss of unconsolidated affiliates	7,800	5,813
Compensatory stock issuances	439	255
Change in assets and liabilities:		
Accounts receivable - trade	(20,758)	(6,477)
Accounts receivable - related parties	460	641
Inventories	(13,088)	(7,696)
Other current assets	(3,416)	(4,322)
Other assets	(5,183)	(151)
Accounts payable	4,813	5,943
Accrued expenses	1,908	(494)
Advanced billings	4,330	4,417
Other	(64)	--
Total adjustments	(13,415)	7,270
Net cash used for operating activities	(17,479)	(3,595)
Cash flows from investing activities:		
Purchase of property, plant, and equipment	(55,876)	(9,932)
Investments in unconsolidated affiliates	(2,382)	(4,083)
Investment in marketable securities, net	38,915	--
Net cash used for investing activities	(19,343)	(14,015)
Cash flows from financing activities:		
Payments on capital lease obligations	9	(373)
Proceeds from public stock offering, net of $8,250 issue costs	--	127,750
Proceeds from exercise of stock options and employee stock purchase		

plan	2,824	1,271
Dividends paid on preferred stock	--	(132)
Proceeds from exercise of stock purchase warrants	14	4,078
Proceeds from shareholders' notes receivable	--	54
Net cash provided by financing activities	2,847	132,648
Net (decrease) increase in cash and cash equivalents	(33,975)	115,038
Cash and cash equivalents, beginning of period	50,849	7,165
Cash and cash equivalents, end of period	$16,874	$122,203
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION		
Cash paid during the period for interest	$21	$220

</TABLE>

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

EMCORE CORPORATION
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
For the years ended September 30, 1999 and 2000 and the six months ended March 31, 2001
(in thousands)
(unaudited)

<TABLE>
<CAPTION>

	Common Stock		Accumulated	Shareholders' Notes		Total Shareholders'
	Shares	Amount	Deficit	Receivable	Other	Equity
<S>	<C>	<C>	<C>	<C>	<C>	<C>
Balance at September 30, 1998	18,752	$87,443	($60,196)	($7,667)		$19,580
Preferred stock dividends			(319)			(319)
Accretion of redeemable preferred stock to redemption value			(52)			(52)
Issuance of common stock purchase warrants		2,596				2,596
Issuance of common stock from public offering, net of issuance cost of $5,000	6,000	52,000				52,000
Stock option exercise	220	376				376
Stock purchase warrant exercise	643	2,450				2,450
Conversion of mandatorily redeemable convertible preferred stock into common stock	1,040	7,125				7,125
Redemptions of shareholders' notes receivable				120		120
Compensatory stock issuance	53	436				436
Net loss			(22,689)			(22,689)
Balance at September 30, 1999	26,708	$152,426	($83,256)	($7,547)	--	

$61,623						
Preferred stock dividends.....			(83)			
(83)						
Accretion of redeemable preferred stock to redemption value.....			(40)			
(40)						
Issuance of common stock purchase warrants.....		689				
689						
Issuance of non-qualified stock options to equity investee.....		835				
835						
Issuance of common stock from public offering, net of issuance cost of $8,500.....	2,000	127,500				
127,500						
Stock option exercise.....	506	2,197				
2,197						
Stock purchase warrant exercise.....	1,996	10,874				
10,874						
Conversion of mandatorily redeemable convertible preferred stock into common stock.....	2,060	14,193				
14,193						
Purchase of treasury stock.....	(3)					(239)
(239)						
Redemptions of shareholders' notes receivable.....				1,192		
1,192						
Compensatory stock issuance.....	23	566				
566						
Conversion of convertible subordinated notes into common stock.....	682	5,500				
5,500						
Net loss.....			(25,485)			
(25,485)						
Balance at September 30, 2000.....	33,972	$314,780	($108,864)	($6,355)	($239)	
$199,322						
Stock option exercise.....	318	2,147				
2,147						
Warrants exercised.....	1	14				
14						
Compensatory stock issuance.....	13	439				
439						
Issuance of common stock under employee stock purchase plan.....	17	677				
677						
Issuance of common stock in connection with acquisition.....	41	1,840				
1,840						
Accretion of non-qualified stock options to equity investee.....		(199)				
(199)						
Accumulated other comprehensive loss.....						(64)
(64)						
Additional shareholders' notes receivable.....				(7)		
(7)						
Net loss.....			(4,064)			
(4,064)						

Balance at March 31, 2001.....	34,362	$319,698	($112,928)	($6,362)	($303) $200,105

</TABLE>

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

EMCORE CORPORATION

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. Interim Financial Information and Description of Business

The accompanying unaudited condensed consolidated financial statements of EMCORE Corporation ("EMCORE" or the "Company") reflect all adjustments considered necessary by management to present fairly the Company's consolidated financial position as of March 31, 2001, the consolidated results of operations for the three and six-month periods ended March 31, 2001 and 2000 and the consolidated cash flows for the six-month periods ended March 31, 2001 and 2000. All adjustments reflected in the accompanying unaudited condensed consolidated financial statements are of a normal recurring nature unless otherwise noted. Prior period balances have been reclassified to conform with the current period financial statement presentation. The results of operations for the three and six-month periods ended March 31, 2001 are not necessarily indicative of the results for the fiscal year ending September 30, 2001 or any future interim period.

EMCORE has two reportable operating segments: the systems-related business unit and the materials-related business unit. The systems-related business unit designs, develops and manufactures tools and manufacturing processes used to fabricate compound semiconductor wafer and devices. This business unit assists our customers with device design, process development and optimal configuration of TurboDisc production systems. Revenues for the systems-related business unit consist of sales of EMCORE's TurboDisc(R) production systems as well as spare parts and services related to these systems. The materials-related business unit designs, develops and manufactures compound semiconductor materials. Revenues for the materials-related business unit include sales of semiconductor wafers, devices and process development technology. EMCORE's vertically-integrated product offering allows it to provide a complete compound semiconductor solution to its customers. The segments reported are the segments of the Company for which separate financial information is available and for which gross profit amounts are evaluated regularly by executive management in deciding how to allocate resources and in assessing performance. The Company does not allocate assets or operating expenses to the individual operating segments. Services are performed for each other however there are no intercompany sales transactions between the two operating segments. Available segment information has been presented in the Statements of Operations.

NOTE 2. Joint Ventures

In May 1999, General Electric Lighting and the Company formed GELcore, a joint venture to develop and market High Brightness Light-Emitting Diode ("HB LED") lighting products. General Electric Lighting and the Company have agreed that this joint venture will be the exclusive vehicle for each party's participation in solid state lighting. Under the terms of the joint venture agreement, the Company has a 49% non-controlling interest in the GELcore venture and accounts for its investment under the equity method of accounting. For the three and six-month periods ended March 31, 2001, the Company recognized a loss of $0.9 million and $2.2 million, respectively, related to this joint venture which has been recorded as a component of other income and expense. As of March 31, 2001, the Company's net investment in this joint venture amounted to $7.2 million.

In March 1997, the Company and a subsidiary of Uniroyal Technology Corporation formed Uniroyal Optoelectronics LLC, a joint venture, to manufacture, sell and distribute HB LED wafers and package-ready devices. Under the terms of the joint venture agreement, the Company has a 49% non-controlling interest in this joint venture and accounts for its investment under the equity method of accounting. In January 2001, the Company invested an additional $0.8 million in this venture. For the three and six-month periods ended March 31, 2001, the Company recognized a loss of $2.8 million and $5.6 million, respectively related to this joint venture, which has been recorded as a component of other income and expense. As of March 31, 2001, the Company's net investment in this joint venture amounted to $4.2 million.

NOTE 3. Acquisitions

In January 2001, the Company purchased Analytical Solutions, Inc., and Training Solutions, Inc. both located in Albuquerque, New Mexico. These companies provide engineering support and analytical services in the form of

performance analysis, failure analysis, cross sectioning and parts qualification to a wide array of high technology companies. The Company intends that the acquisition of these companies will accelerate product development and qualification with customers, particularly in fiberoptics. The total consideration for these

two companies was approximately $4.0 million which was paid in both cash and the Company's common stock. The acquisition was recorded using the purchase method of accounting. The Company allocated approximately $3.1 million to goodwill which is being amortized over a period of five years.

NOTE 4. Earnings Per Share

The Company accounts for earnings per share under the provision of Statement of Financial Accounting Standards No. 128 "Earnings per share". Basic earnings per common share were calculated by dividing net income (loss) by the weighted average number of common stock shares outstanding during the period. Diluted earnings per common share were calculated by dividing net income by the weighted average number of shares and dilutive potential shares outstanding during the year, assuming conversion of the potential shares at the beginning of the period presented. Shares issuable upon conversion of stock options and other performance awards have been included in the diluted calculation of weighted-average shares to the extent that the assumed issuance of such shares would have been dilutive, as illustrated below. The following table reconciles the number of shares utilized in the earnings per share calculations for the three and six-month periods ending March 31, 2001 and 2000, respectively.

<TABLE>
<CAPTION>

	Three Months Ended March 31,		Six Months Ended March 31,	
	2001	2000	2001	2000
<S>	<C>	<C>	<C>	<C>
Net income (loss)	$2,944	($4,207)	($4,064)	($10,865)
Preferred stock dividends	--	(15)	--	(82)
Periodic accretion of redeemable preferred stock to mandatory redemption value	--	(5)	--	(40)
Net income (loss) attributable to common shareholders	$2,944	($4,227)	($4,064)	($10,987)
Net income (loss) per basic share	$0.09	($0.14)	($0.12)	($0.39)
Net income (loss) per diluted share	$0.08	($0.14)	($0.12)	($0.39)
Weighted average of outstanding common shares - basic	34,319	29,790	34,158	28,628
Effect of dilutive securities: Stock option and warrants	4,067	--	--	--
Weighted average of outstanding common shares - diluted	38,386	29,790	34,158	28,628

</TABLE>

NOTE 5. Other Income

Other income for the three months ended March 31, 2001 includes a net gain of $5.9 million related to the settlement of litigation.

NOTE 6. Other Comprehensive Loss

Other comprehensive loss includes foreign currency translation adjustments.

<TABLE>
<CAPTION>

	Three Months Ended March 31,		Six Months Ended March 31,	
	2001	2000	2001	2000
<S>	<C>	<C>	<C>	<C>
Net income (loss)	$2,944	($4,207)	($4,064)	($10,865)
Accumulated other comprehensive income (loss)	16	--	(64)	--
Total comprehensive income (loss)	$2,960	($4,207)	($4,128)	($10,865)

</TABLE>

NOTE 7. Inventories

The components of inventories consisted of the following:

(Amounts in thousands)	As of March 31, 2001	As of September 30, 2000
Raw materials	$30,181	$19,594
Work-in-process	11,244	8,831
Finished goods	2,386	2,299
Total	$43,811	$30,724

NOTE 8. Related Parties

The President of Hakuto Co. Ltd. ("Hakuto"), the Company's Asian distributor, is a member of the Company's Board of Directors and Hakuto is a minority shareholder of the Company. During the three and six-month periods ended March 31, 2001, sales made through Hakuto amounted to approximately $4.9 million and $7.8 million, respectively. During the three and six-month periods ended March 31, 2000, sales made through Hakuto amounted to approximately $3.8 million and $7.4 million respectively.

From time to time, the Company has lent money to certain of its executive officers and directors. Pursuant to due authorization from the Company's Board of Directors, the Company lent $3.0 million to Reuben F. Richards, Jr., Chief Executive Officer and a director of the Company. The promissory note bears interest at a rate of 5.18% per annum, compounded annually. The note is fully secured by a pledge of certain shares of the Company's common stock. Principal and accrued interest is payable in February 2004.

NOTE 9. Debt Facilities

On March 1, 2001, the Company entered into an Amended and Restated Revolving Loan and Security Agreement with First Union National Bank. This credit facility provides for revolving loans in an amount up to $20.0 million outstanding at any one time, depending on the Company's borrowing base. These loans bear interest payable monthly in arrears at a rate equal to the lesser of the prime rate and LIBOR plus a margin of 1.50%. The credit facility matures on January 31, 2003. The loans under the credit facility are secured by a security interest in substantially all of our personal property.

NOTE 10. Recent Accounting Pronouncements

In December 1999, the Securities and Exchange Commission ("SEC") issued Staff Accounting Bulletin No. 101. ("SAB 101") "Revenue Recognition in Financial Statements," which provides guidance on the recognition, presentation, and disclosure of revenue in financial statements filed with the SEC. SAB 101 outlines the basic criteria that must be met to recognize revenue and provides guidance for disclosures related to revenue recognition policies. The Company

will adopt SAB 101 by the fourth quarter of fiscal year 2001. Currently, the Company recognizes revenue from system sales upon shipment, when title passes to the customer. Subsequent to product shipment, the Company incurs certain installation costs at the customer's facility that are estimated and accrued at the time the sale is recognized. SAB 101 will require the Company to defer revenue and costs related to this installation portion until the service is completed. Had the Company adopted SAB 101, management has determined the impact of such adoption would have resulted in a deferral of approximately $4.0 million of system revenue and an decrease in net income of approximately $3.3 million during the three months ended March 31, 2001. Generally, system installation takes 2-4 weeks, therefore, revenue deferral would be predominantly recognized in the ensuing quarter and the adoption of SAB 101 would be considered only a timing difference predominately on systems shipped during the last month of a quarter. Management does not anticipate that SAB 101 will have an effect on the Company's material and device revenues.

NOTE 11. Subsequent Events

Debt Facilities - On May 2, 2001 the Company announced it had agreed to privately place $150 million aggregate principal amount of 5% convertible subordinated notes due 2006. The notes are convertible into EMCORE common stock at a conversion price of $48.76 per share. The Company also granted the initial purchasers of the notes a 30-day option to purchase an additional $25 million principal amount of the notes. On May 7, 2001, the Company completed the private placement of $175 million aggregate principal amount of the notes. The Company intends to use the proceeds of the offering for general corporate purposes, including capital expenditures, working capital, funding its joint ventures, repaying existing indebtedness, and research and development. In addition, the Company may use a portion of the proceeds of the offering to strategically acquire or invest in complementary businesses, products or technology, either directly or through its joint ventures.

Joint Venture - On April 11, 2001, the Company invested an additional $3.9 million into the GELcore joint venture.

Commitments and Contingencies - In 1992, EMCORE received a royalty bearing, non-exclusive license under a patent held by Rockwell International Corporation which relates to an aspect of the manufacturing process used by its TurboDisc systems. In October 1996, EMCORE initiated discussions with Rockwell to receive additional licenses to permit EMCORE to use this technology to manufacture and sell compound semiconductor wafers and devices. In November 1996, EMCORE suspended these negotiations because of litigation surrounding the validity of the Rockwell patent. EMCORE also ceased making royalty payments to Rockwell under the license during the pendency of the litigation. In January 1999, the case was settled and a judgment was entered in favor of Rockwell. On April 25, 2001, the Company entered into a settlement agreement with Rockwell Technologies, LLC which released us from any liability relating to our manufacture and past sales of epitaxial wafers, chips and devices under Rockwell's US Patent No. 4,368,098. At March 31, 2001, the Company was fully reserved for this settlement payment.

ITEM 2.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This report contains forward-looking statements based on our current expectations, estimates, and projections about our industry, management's beliefs, and certain assumptions made by us. Words such as "anticipates", "expects", "intends", "plans", "believes", "seeks", "estimates", "may", "will" and variations of these words or similar expressions are intended to identify forward-looking statements. In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. These statements are not a guarantee of future performance and are subject to certain risks, uncertainties and assumptions that are difficult to predict. Therefore, our actual results could differ materially and adversely from those expressed in any forward-looking statements as a result of various factors, including, but not limited to: rapid growth which places a strain on our resources; our expectation of continued operating losses; rapid technology changes in the compound semiconductor industry that require us to continually improve existing products, design and sell new products and manage the costs of research and development in order to effectively compete; fluctuations in our quarterly operating results which may negatively impact our stock price; the fact that our joint venture partners, who have control of these ventures, may make decisions that we do not agree with and thereby adversely affect our net income; our exposure to export risks since a large percentage of our revenues are from foreign sales; the potential for us to lose sales if we are unable to obtain government authorization to export our products; the fact that our products are difficult to manufacture and small manufacturing defects can adversely affect our production yields and our operating results; lengthy sales

and qualifications cycles for our products that are typical of our industry and, in many cases, require us to invest a substantial amount of time and funds before we receive orders; industry demand for skilled employees, particularly scientific and technical personnel with compound semiconductor experience which exceeds the number of skilled personnel available; protecting our trade secrets and obtaining patent protection which is critical to our ability to compete for business; licenses that may be required to continue to manufacture and sell certain of our compound semiconductor wafers and devices, the expense of which may adversely affect our results of operations; interruptions in our business and a significant loss of sales to Asia which may result if our primary Asian distributor fails to effectively market and service our products; our management's stock ownership which gives them the power to control business affairs and prevent a takeover that could be beneficial to unaffiliated shareholders; the consequences of unsuccessful control of the hazardous raw materials used in our manufacturing process which could result in costly remediation fees, penalties or damages under environmental and safety regulations; our business or our stock price which could be adversely affected by issuance of preferred stock; certain provisions of New Jersey Law and our charter which may make a takeover of our company difficult even if such takeover could be beneficial to some of our shareholders; fluctuations in the price of our common stock which may continue in the future. Our Annual Report on Form 10-K and other SEC filings discuss some of the important risk factors that may affect our business, results of operations and financial condition. We undertake no obligation to revise or update publicly and forward-looking statements for any reason.

OVERVIEW:

EMCORE Corporation designs, develops and manufactures compound semiconductor wafers and devices and is a leading developer and manufacturer of the tools and manufacturing processes used to fabricate compound semiconductor wafers and devices. Compound semiconductors are composed of two or more elements and usually consist of a metal, such as gallium, aluminum or indium, and a non-metal such as arsenic, phosphorus or nitrogen. Many compound semiconductors have unique physical properties that enable electrons to move through them at least four times faster than through silicon-based devices and are therefore well suited to serve the growing need for efficient, high performance electronic systems.

EMCORE offers a comprehensive portfolio of products and systems for the rapidly expanding broadband, wireless communications and solid state lighting markets. We have developed extensive materials science expertise and process technology to address our customers' needs. Customers can take advantage of our vertically integrated solutions approach by purchasing custom-designed wafers and devices from us, or by manufacturing their own devices in-house using one of our metal organic chemical vapor deposition ("MOCVD") production systems configured to their specific needs. Our products and systems enable our customers to cost effectively introduce new and improved high performance products to the market faster in high volumes.

The growth in our business is driven by the widespread deployment of fiber optic networks, introduction of new wireless networks and services, rapid

build-out of satellite communication systems, increasing use of more power efficient lighting sources, increasing use of electronics in automobiles and emergence of advanced consumer electronic applications. Also, the growing demands for higher volumes of a broad range of higher performance devices has resulted in manufacturers increasingly outsourcing their needs for compound semiconductor wafers and devices. Our expertise in materials science and process technology provides us with a competitive advantage to manufacture compound semiconductor wafers and devices in high volumes. We have increased revenues at a compound annual growth rate ("CAGR") of 30% over the three fiscal years ended September 30, 2000, from $47.8 million in fiscal 1997 to $104.5 million in fiscal 2000.

Wafers and Devices

EMCORE offers a broad array of compound semiconductor wafers and devices, including optical components and components for use in high-speed data communications and telecommunications networks, radio frequency materials ("RF materials") used in mobile communications products such as wireless modems and handsets, solar cells that power commercial and military satellites high brightness light-emitting diodes ("HB LEDs") for several lighting markets and magneto resistive sensors ("MR sensors") for various automotive applications.

- Optical Components and Modules. Our family of vertical cavity surface emitting lasers ("VCSEL") and VCSEL array transceiver and transponder products, as well as our photodiode array components, serve the rapidly growing high-speed data communications network markets, including the Gigabit Ethernet, FibreChannel, Infiniband, and Very Short Reach OC-192, the emerging Very Short Reach OC-768 and related markets. Our strategy is

to manufacture high cost optical components and subassemblies in-house, using our proprietary technologies, to reduce the overall cost of our transceiver and transponder modules.

- RF Materials. We currently produce 4-inch and 6-inch InGaP HBT and pHEMT materials that are used by our wireless customers for power amplifiers for GSM, TDMA, CDMA and the emerging 3G multiband wireless handsets.

- Solar Cells. Solar cells are typically the largest single cost component of a satellite. Our compound semiconductor solar cells, which are used to power commercial and military satellites, have achieved industry-leading efficiencies. Solar cell efficiency dictates the electrical power of the satellite and bears upon the weight and launch costs of the satellite. We began shipping our triple junction solar cells in December 2000.

- HB LEDs. Through our joint ventures with General Electric Lighting and Uniroyal Technology Corporation, we provide advanced HB LED technology used in such products as wafers and package-ready devices and in such applications as traffic lights, miniature lamps, automotive lighting, and flat panel displays.

Production Systems

EMCORE is a leading provider of compound semiconductor technology processes and MOCVD production tools. We believe that our proprietary TurboDisc deposition technology makes possible one of the most cost-effective production processes for the commercial volume manufacture of high-performance compound semiconductor wafers and devices, which are integral to broadband communication applications.

Customers

Our customers include Agilent Technologies Ltd., Anadigics Inc., Boeing-Spectrolab, Corning, Inc., General Motors Corp., Hewlett Packard Co., Honeywell International Inc., IBM, JDS Uniphase Corp., Loral Space &Communications Ltd., Lucent Technologies, Inc., Motorola, Inc., Nortel Networks Corp., Siemens AG's Osram GmbH subsidiary, TriQuint Semiconductor, Inc. and more than a dozen of the largest electronics manufacturers in Japan.

Benefits of Compound Semiconductors

Recent advances in information technologies have created a growing need for efficient, high- performance electronic systems that operate at very high frequencies, have increased storage capacity and computational and display capabilities and can be produced cost-effectively in commercial volumes. In the past, electronic systems manufacturers have relied on advances in silicon semiconductor technology to meet many of these demands. However, the newest generation of high-performance electronic and optoelectronic applications require certain functions that are generally not achievable using silicon-based components. Compound semiconductors have emerged as an enabling technology to meet the complex requirements of today's advanced information systems. Many compound semiconductor materials have unique physical properties that allow electrons to move at least four times faster than through silicon-based devices.

Advantages of compound semiconductor devices over silicon devices include: operation at higher speeds; lower power consumption; less noise and distortion; and optoelectronic properties that enable these devices to emit and detect light. Although compound semiconductors are more expensive to manufacture than the more traditional silicon-based semiconductors, electronics manufacturers are increasingly integrating compound semiconductors into their products in order to achieve the higher performance demands of today's electronic products and systems.

Strategy

Our objective is to capitalize on our position as a leading developer and manufacturer of compound semiconductor tools and manufacturing processes to become the leading supplier of compound semiconductor wafers and devices. The key elements of our strategy are to: apply our core materials and manufacturing expertise across multiple product applications; target high growth market opportunities; continue to recognize greater value for our core technology; partner with key industry participants; and, continue our investment in research and development to maintain technology leadership.

Highlights of the Quarter:

Shipment of Industry's First Commercial 10 Gbps VCSEL:

This new optical device meets emerging speed and performance requirements in data communication networks, and was designed to work in existing optical components. The 10 Gbps VCSEL features 3 dB bandwidth in excess of 10 GHz, enabling transceiver vendors to develop devices that meet 10 Gbps short-haul

multimode standards. The timely availability of the 10 Gbps VCSEL light source will help catapult EMCORE's customers into the next generation of their broadband product offerings.

Technology Award Winner:

The Company's VCSEL arrays (1 X 4 and 1 X 12) were selected from 2,400 new products to win Fiberoptic Product News Magazine's technology award based on design and technological innovation. VCSEL arrays are ideal for providing high speed cost effective links to enable faster data transmission without increasing the size of the switch, are instrumental in developing optical backplanes for high speed computers, and are part of the emerging Infiniband (SM) standard.

Development of 2.5 Gbps Optical Subassemblies:

The Company designed and developed 2.5 Gbps LC and SC TOSA packages, which are cost effective and ideal for easy integration into existing and new transceiver module designs. Both products use the Company's 2.5 Gbps oxide VCSEL, which meets the performance requirements of short reach and very short reach multimode fiber optic applications, including LANs, SANs, backplane, rack-to-rack and intraswitch. By offering a single product for all applications, EMCORE enables their customers to reduce the number of inventory items they must carry.

Results of Operations

The following table sets forth the condensed consolidated Statement of Operations data of EMCORE expressed as a percentage of total revenues for the three and six-month periods ended March 31, 2001 and 2000:

Statement of Operations Data:

<TABLE>
<CAPTION>

	Three Months Ended March 31,		Six Months Ended March 31,	
	2001	2000	2001	2000
<S>	<C>	<C>	<C>	<C>
Revenues	100.0%	100.0%	100.0%	100.0%
Cost of revenues	59.1%	58.5%	59.0%	58.8%
Gross profit	40.9%	41.5%	41.0%	41.2%
Operating expenses:				
Selling, general and administrative	15.8%	22.0%	16.5%	24.7%
Goodwill amortization	0.2%	4.6%	1.0%	5.4%
Research and development	25.0%	19.5%	28.6%	23.2%
Total operating expenses	41.0%	46.1%	46.1%	53.3%
Operating loss	(0.1%)	(4.6%)	(5.1%)	(12.1%)
Other (income) expense:				
Interest income, net	(1.7%)	(2.6%)	(2.6%)	(1.7%)
Other income	(12.3%)	--	(6.7%)	--
Imputed warrant interest expense	--	2.8%	--	2.1%
Equity in net loss of unconsolidated affiliates	7.7%	12.8%	8.9%	14.4%
Total other (income) expenses	(6.3%)	13.0%	(0.4%)	14.8%
Net income (loss)	6.2%	(17.6%)	(4.6%)	(26.9%)

</TABLE>

EMCORE has generated a significant portion of its sales to customers outside the United States. EMCORE anticipates that international sales will continue to account for a significant portion of revenues. Historically, EMCORE has received substantially all payments for products and services in U.S. dollars and therefore EMCORE does not currently anticipate that fluctuations in any currency will have a material effect on its financial condition or results of operations.

The following chart contains a breakdown of EMCORE's worldwide revenues by geographic region.

<TABLE>
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	For the fiscal years ended September 30,		
	2000	1999	1998

(in thousands)	Revenue	% of revenue	Revenue	% of revenue	Revenue	% of revenue
<S>	<C>	<C>	<C>	<C>	<C>	<C>
Region:						
North America	$64,174	62%	$27,698	48%	$26,648	61%
Asia	34,656	33%	28,211	48%	15,527	35%
Europe	5,676	5%	2,432	4%	1,585	4%
TOTAL	$104,506	100%	$58,341	100%	$43,760	100%

</TABLE>

<TABLE>

	For the six months ended March 31,			
	2001		2000	
(in thousands)	Revenue	% of revenue	Revenue	% of revenue
<S>	<C>	<C>	<C>	<C>
Region				
North America	$45,744	52%	$22,422	55%
Asia	35,639	41%	13,303	33%
Europe	6,588	7%	4,701	12%
TOTAL	$87,971	100%	$40,426	100%

</TABLE>

As of March 31, 2001, EMCORE had an order backlog of $155.5 million scheduled to be shipped through March 31, 2002. This represents an increase of 24% or $30.5 million since September 30, 2000. March 2001 backlog also compares favorably to the sequential backlog reported at December 31, 2000 of $155.0 million. EMCORE includes in backlog only customer purchase orders that have been accepted by EMCORE and for which shipment dates have been assigned within the 12 months to follow and research contracts that are in process or awarded. Wafer and device agreements extending longer than one year in duration are included in backlog only for the ensuing 12 months. EMCORE receives partial advance payments or irrevocable letters of credit on most production system orders.

EMCORE has two reportable operating segments: the systems-related business unit and the materials-related business unit. The systems-related business unit designs, develops and manufactures tools and manufacturing processes used to fabricate compound semiconductor wafer and devices. This business unit assists our customers with device design, process development and optimal configuration of TurboDisc production systems. Revenues for the systems-related business unit consist of sales of EMCORE's TurboDisc production systems as well as spare parts and services related to these systems. The materials-related business unit designs, develops and manufactures compound semiconductor materials. Revenues for the materials-related business unit include sales of semiconductor wafers, devices, packaged devices, modules and process development technology. EMCORE's vertically-integrated product offering allows it to provide a complete compound semiconductor solution to its customers. The segments reported are the segments of EMCORE for which separate financial information is available and for which gross profit amounts are evaluated regularly by executive management in deciding

how to allocate resources and in assessing performance. EMCORE does not allocate assets or operating expenses to the individual operating segments. Services are performed for each other however there are no intercompany sales transactions between the two operating segments.

Comparison of three and six-month periods ended March 31, 2001 and 2000

Revenues. EMCORE's revenues increased 100% or $24.0 million from $23.9 million for the three- month period ended March 31, 2000 to $47.9 million for the three-month period ended March 31, 2001. For the six-month period ended March 31, 2001, revenues increased 118% or $47.5 million from $40.4 million in 2000 to $88.0 million in 2001. On a sequential basis, revenues reached record levels for the fifth consecutive quarter and increased 20% or $7.8 million from $40.1 million reported in the prior quarter. This increase in revenues was attributable to both systems and materials-related product lines. For the six-month period, systems-related revenues increased 134% or $33.9 million from $25.3 million to $59.3 million. On a sequential basis, systems-related revenues increased 21% or $5.7 million from $26.8 million reported in the prior quarter. The number of MOCVD production systems shipped during the six-month period increased 128% from 18 in 2000 to 41 systems in 2001. Management expects fiscal year 2001 system shipments to increase approximate 90% over fiscal year 2000

shipments to approximately 90 MOCVD systems. Materials-related revenues for the six-month period increased 90% or $13.6 million from $15.1 million to $28.7 million. On a sequential basis, materials-related revenues increased 16% or $2.2 million from $13.3 million reported in the prior quarter. This revenue growth was primarily related to sales of solar cells, pHEMT and HBT epitaxial wafers and VCSELs, which increased 39%, 192% and 304%, respectively, from the prior year. As a percentage of revenues, systems and materials-related revenues accounted for 63% and 37%, respectively, for the six-month period ended March 31, 2000 and 67% and 33%, respectively, for the six-month period ended March 31, 2001. EMCORE expects the product mix between systems and materials to approach 50% as other new products are introduced and production of commercial volumes of these materials commences. International sales accounted for 45% of revenues for the six-month period ended March 31, 2000 and 48% of revenues for the six-month period ended March 31, 2001.

Gross Profit. EMCORE's gross profit increased 97% or $9.6 million from $9.9 million for the three- month period ended March 31, 2000 to $19.5 million for the three-month period ended March 31, 2001. For the six-month period ended March 31, 2001, gross profit increased 117% or $19.5 million from $16.7 million in 2000 to $36.1 million in 2001. On a sequential basis, gross profit increased 19% or $3.1 million from $16.5 million. For the six-month period, gross profit earned on systems-related revenues increased 160% or $16.5 million from $10.3 million to $26.7 million. This is due primarily to the increase in sales of production systems, as well as, improved manufacturing efficiencies. Component and service related revenues continue to increase since EMCORE's production system installed base now exceeds 400 MOCVD systems. For the six-month period, gross profit earned on materials-related revenues increased 47% or $3.0 million from $6.4 million to $9.4 million. Management expects gross profits on materials-related sales to increase due to recent yield improvements in manufacturing processes and expected increased production output due to EMCORE's strong order backlog of material-related products.

Selling, General and Administrative. Selling, general and administrative expenses increased by 43% or $2.3 million from $5.3 million for the three-month period ended March 31, 2000 to $7.6 million for the three-month period ended March 31, 2001. For the six-month period ended March 31, 2001, selling general and administrative expenses increased 45% or $4.5 million from $10.0 in 2000 to $14.5 million in 2001. On a sequential basis, selling, general and administrative expenses increased 8% or $0.6 million from $7.0 million incurred in the prior quarter. A significant portion of the increase was due to headcount increases in marketing and sales personnel to support domestic and foreign markets and other administrative headcount additions to sustain internal support. As a percentage of revenue, selling, general and administrative expenses decreased from 25% for the six-month period ended March 31, 2000 to 17% for the six-month period ended March 31, 2001. On a sequential basis, as a percentage of revenue, selling, general and administrative expenses decreased from 17% realized in the prior quarter to 16%.

Goodwill Amortization. Goodwill of $3.1 million was recorded in connection with our acquisitions of Analytical Solutions, Inc. and Training Solutions, Inc. in January 2001. This goodwill is being amortized over a period of five years. During the three months ended March 31, 2001, goodwill amortization totaled $0.1 million.

Research and Development. Research and development expenses increased 157% or $7.3 million from $4.7 million in the three-month period ended March 31, 2000 to $12.0 million in the three month-period ended March 31, 2001. For the six-month period ended March 31, 2001, research and development increased 169% or $15.8 million from $9.4 million in 2000 to $25.2 million in 2001. On a sequential basis, research and development expenses decreased 9% or $1.2 million from $13.2 million incurred in the last quarter. The completion and release of

several new fiber optic products, including a 10 Gbps serial device and 2.5 Gbps LC/SC TOSAs (optical subassemblies) for various data communications network applications, contributed to the decrease. To maintain growth and to continue to pursue market leadership in materials science technology, management expects the amount to continue to invest a significant amount of its resources in research and development. EMCORE expects the amount of research and development expenditures to continue at levels similar to the second quarter's for the remainder of fiscal year 2001 as the Company finalizes the development and commercialization of new fiber optic products, including long wavelength VCSELs (vertical cavity surface emitting lasers), optical subassemblies and modules. As a percentage of revenue, research and development expenses decreased from 33% for the three months ended December 31, 2000 to 25% for the three months ended March 31, 2001.

Interest income, net. For the three-month period ended March 31, 2001, net interest income increased $0.2 million from $0.6 million in 2000 to $0.8 million. For the six-month period ended March 31, 2001, interest expense increased 230% or $1.6 million from $0.7 million in 2000 to $2.3 million in 2001. Higher cash balances early in fiscal year 2001 contributed to increased

interest income.

Other income, net. Other income for the three months ended March 31, 2001 includes a net gain of $5.9 million related to the settlement of litigation.

Equity in unconsolidated affiliates. Because EMCORE does not have a controlling economic and voting interest in its joint ventures, EMCORE accounts for these joint ventures under the equity method of accounting. For the three months ended March 31, 2001, EMCORE incurred a net loss of approximately $0.9 million related to the GELcore joint venture, down from a $1.1 million net loss incurred in 2000. On a sequential basis, GELcore's net loss decreased 32% or $0.4 million from $1.3 million incurred last quarter. EMCORE also incurred a net loss of approximately $2.8 million related to the UOE joint venture in the three months ended March 31, 2001, up from a $1.9 million net loss incurred in 2000. On a sequential basis, UOE's net loss remained flat at $2.8 million for each period.

Income Taxes. As a result of its losses, EMCORE did not incur any income tax expense in both the three and six-month periods ended March 31, 2001 and 2000.

EMCORE has experienced and expects to continue to experience significant fluctuations in quarterly results. Factors which have had an influence on and may continue to influence EMCORE's operating results in a particular quarter include, but are not limited to, the timing of receipt of orders, cancellation, rescheduling or delay in product shipment or supply deliveries, product mix, competitive pricing pressures, EMCORE's ability to design, manufacture and ship products on a cost effective and timely basis, including the ability of EMCORE to achieve and maintain acceptable production yields for wafers and devices, regional economic conditions and the announcement and introduction of new products by EMCORE and by its competitors. The timing of sales of EMCORE's TurboDisc production systems may cause substantial fluctuations in quarterly operating results due to the substantially higher per unit price of these products relative to EMCORE's other products. If the compound semiconductor industry experiences downturns or slowdowns, EMCORE's business, financial condition and results of operations may be materially and adversely affected.

Liquidity and Capital Resources

EMCORE has funded operations to date through sales of equity, bank borrowings, subordinated debt and revenues from product sales. In June 1999, EMCORE completed a secondary public offering and raised approximately $52.0 million, net of issuance costs. In March 2000, EMCORE completed an additional public offering and raised approximately $127.5 million, net of issuance costs. As of March 31, 2001, EMCORE had working capital of approximately $64.2 million, including $28.8 million in cash, cash equivalents and marketable securities.

Cash used for operating activities approximated $17.5 million during the six-month period ended March 31, 2001 as a result of increases in both inventory and accounts receivable. The increase in accounts receivable was within expectations of the 100% increase in revenues from the prior year. For the six months ended March 31, 2001 net cash used for investment activities amounted to $19.3 million, which represents an increase of 38% or $5.3 million from the prior year. For the six months ended March 31, 2001, EMCORE's capital expenditures totaled $55.9 million, which was used primarily for capacity expansion at both New Jersey and New Mexico's manufacturing facilities. EMCORE quadrupled its production capacity for GaInP HBTs and pHEMTs to meet wireless and fiber optic market demands. Completed in January 2001, EMCORE tripled its cleanroom manufacturing capacity in New Mexico by adding on an additional 36,000 square feet to the existing 50,000 square foot building which houses EMCORE's solar cell, optical components and networking products. EMCORE's planned capital expenditures are expected to total approximately $80.0 million during fiscal year 2001. Capital spending in fiscal year 2001 also includes the purchase of and continued upgrades to manufacturing facilities, continued investment in analytical and diagnostic research and development equipment, upgrading and

purchasing computer equipment and the manufacture of TurboDisc MOCVD production systems used internally for production of materials-related products. EMCORE's net investment in marketable securities was reduced by $38.9 million during the six months ended March 31, 2001. Net cash provided by financing activities for the six months ended March 31, 2001 amounted to approximately $2.8 million primarily from proceeds of stock option exercises and employee participation in EMCORE's Employee Stock Purchase Plan.

On May 2, 2001 the Company announced that that it had agreed to privately place $150 million aggregate principal amount of 5% convertible subordinated notes due 2006. The notes are convertible into EMCORE common stock at a conversion price of $48.76 per share. The Company also granted the initial purchasers of the notes a 30-day option to purchase an additional $25 million principal amount of the notes. On May 7, 2001, the Company completed the private placement of $175 million aggregate principal amount of the notes. The Company

intends to use the proceeds of the offering for general corporate purposes, including capital expenditures, working capital, funding its joint ventures, repaying existing indebtedness, and research and development. In addition, the Company may use a portion of the proceeds of the offering to strategically acquire or invest in complementary businesses, products or technology, either directly or through its joint ventures. EMCORE believes that its current liquidity, together with available credit, should be sufficient to meet its cash needs for working capital through fiscal year 2002.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

During the six months ended March 31, 2001, EMCORE invested in high-grade corporate debt, commercial paper, government securities and other investments at fixed interest rates that vary by security. No other material changes in market risk were identified. EMCORE had no debt outstanding as of March 31, 2001.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

Not applicable

ITEM 2. CHANGES IN SECURITIES AND USE OF PROCEEDS

Not applicable

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

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

The following matters were submitted to a vote of shareholders at the Company's 2001 Annual Meeting of Shareholders held February 28, 2001:

a) Election of Directors:

	Number of shares	
	For	Withheld
Robert Louis Dreyfus	25,996,382	4,234,438
Charles Scott	28,593,343	1,637,077
Richard A. Stall	30,103,227	127,593

b) Ratify selection of Deloitte & Touche LLP as independent auditors of the Company for fiscal year ended September 30, 2001.

Number of shares: For: 30,108,406 Against: 34,052 Abstain: 88,352

c) Approval of an increase in the number of shares of Common Stock available for issuance under the 2000 Stock Option Plan.

For: 14,881,574 Against: 10,488,015 Abstain: 57,122

ITEM 5. OTHER INFORMATION

Not applicable

ITEM 6. EXHIBITS AND REPORTS ON FORM 8-K

(a) List of Exhibits:

4.1 Indenture, dated as of May 7, 2001, between the Company and Wilmington Trust Company, as Trustee.

4.2 Note, dated as of May 7, 2001, in the amount of $175,000,000.

4.3 Amended And Restated Revolving Loan And Security Agreement, dated as of March 1, 2001, between the Company and First Union National Bank.

10.1 Registration Rights Agreement, dated as of May 7, 2001, among the Company and Credit Suisse First Boston Corporation, on behalf of the initial purchasers.

(b) Reports on Form 8-K:

- No reports on Form 8-K were filed during the quarter ended March 31, 2001

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.

EMCORE CORPORATION

Date: May 14, 2001

By: /s/ Reuben F. Richards, Jr.

Reuben F. Richards, Jr.
President and Chief Executive Officer

Date: May 14, 2001

By: /s/ Thomas G. Werthan

Thomas G. Werthan
Vice President and Chief Financial Officer

Exhibit 4.1

- ---

EMCORE CORPORATION

5% CONVERTIBLE SUBORDINATED NOTES DUE 2006

INDENTURE

Dated as of May 7, 2001

Wilmington Trust Company

Trustee

TABLE OF CONTENTS

<TABLE>
<CAPTION>

</TABLE>

<TABLE>
<CAPTION>

<S> <C> <C>

</TABLE>

EXHIBITS

INDENTURE dated as of May 7, 2001 between EMCORE Corporation, a New Jersey corporation (the "COMPANY"), and Wilmington Trust Company, as trustee (the "TRUSTEE").

The Company and the Trustee agree as follows for the benefit of each other and for the equal and ratable benefit of the Holders of the 5% Convertible Subordinated Notes due 2006 (the "NOTES"):

ARTICLE 1.
DEFINITIONS AND INCORPORATION BY REFERENCE

SECTION 1.01. DEFINITIONS.

"144A GLOBAL NOTE" means a global note substantially in the form of Exhibit A hereto bearing the Global Note Legend and the Private Placement Legend and deposited with or on behalf of, and registered in the name of, the Depositary or its nominee that will be issued in a denomination equal to the outstanding principal amount of the Notes sold in reliance on Rule 144A.

"ADDITIONAL INTEREST" means all Additional Interest then owing pursuant to Section 5 of the Registration Rights Agreement.

"AFFILIATE" of any specified Person means any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified Person. For purposes of this definition, "control" (including, with correlative meanings, the terms "controlling," "controlled by" and "under common control with"), as used with respect to any Person, shall mean the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of such Person, whether through the ownership of voting securities, by agreement or otherwise; PROVIDED, HOWEVER, that beneficial ownership of 10% or more of the voting securities of a Person shall be deemed to be control.

"AGENT" means any Registrar, Paying Agent or co-registrar.

"APPLICABLE PROCEDURES" means, with respect to any transfer or exchange of or for beneficial interests in any Global Note, the rules and procedures of the Depositary, Euroclear and Cedel that apply to such transfer or exchange.

"BANKRUPTCY LAW" means Title 11, U.S. Code or any similar federal or state law for the relief of debtors.

"BOARD OF DIRECTORS" means the Board of Directors of the Company, or any authorized committee of the Board of Directors.

"BROKER-DEALER" has the meaning set forth in the Registration Rights Agreement.

"BUSINESS DAY" means any day other than a Legal Holiday.

"CAPITAL LEASE OBLIGATION" means, at the time any determination thereof is to be made, the amount of the liability in respect of a capital lease that would at such time be required to be capitalized on a balance sheet in accordance with GAAP.

"CAPITAL STOCK" means any and all shares, interests, participations, rights or other equivalents (however designated) of corporate stock, including, without limitation, with respect to partnerships, partnership interests (whether general or limited) and any other interest or participation that confers on a Person the right to receive a share of the profits and losses of, or distributions of assets of, such partnership.

"CEDEL" means Cedel Bank, SA., and any and all successors thereto.

"CLOSING SALE PRICE" means the last reported sales price or, in case no such reported sale takes place on such date, the average of the reported closing bid and asked prices in either case on The Nasdaq National Market or, if the Common Stock is not listed or admitted to trading on The Nasdaq National Market, on the principal national securities exchange on which the Common Stock is listed or admitted to trading or, if not listed or admitted to trading on The Nasdaq National Market or any national securities exchange, the last reported sales price of the Common Stock as quoted on NASDAQ or, in case no reported sales takes place, the average of the closing bid and asked prices as quoted on NASDAQ or any comparable system or, if the Common Stock is not quoted on NASDAQ or any comparable system, the closing sales price or, in case no reported sale takes place, the average of the closing bid and asked prices, as furnished by any two members of the National Association of Securities Dealers, Inc. selected from time to time by the Company for that purpose.

"COMPANY" means the issuer, and any and all successors thereto.

"COMMON STOCK" means the common stock, no par value per share, of the Company.

"CORPORATE TRUST OFFICE OF THE TRUSTEE" shall be at the address of the Trustee specified in Section 11.02 hereof or such other address as to which the Trustee may give notice to the Company.

"CREDIT AGREEMENT" means the Amended and Restated Revolving Loan and Security Agreement, dated as of March 1, 2001, between the Company and First Union National Bank.

"CUSTODIAN" means the Trustee, as custodian with respect to the Global Notes or any successor entity thereto.

"DEFAULT" means any event that is or with the passage of time or the giving of notice or both would be an Event of Default.

"DEFINITIVE NOTE" means a certificated Note registered in the name of the Holder thereof and issued in accordance with Section 2.06 hereof, substantially in the form of Exhibit A hereto except that such Note shall not bear the Global Note Legend and shall not have the "Schedule of Exchanges of Interests in the Global Note" attached thereto.

"DEPOSITARY" means, with respect to any Global Notes, the Person specified in Section 2.03 hereof as the Depositary with respect to such Global Notes, and any and all successors thereto appointed as depositary hereunder and having become such pursuant to the applicable provision of this Indenture.

"DESIGNATED SENIOR INDEBTEDNESS" means (i) any Indebtedness outstanding under the Credit Agreement and (ii) any other Senior Indebtedness permitted hereunder the principal amount of which is $10.0 million or more and that has been designated by the Company as "Designated Senior Indebtedness" at such time as the Credit Agreement is no longer outstanding.

"EQUITY INTERESTS" means Capital Stock and all warrants, options or other rights to acquire Capital Stock (but excluding any debt security that is convertible into, or exchangeable for, Capital Stock).

"EUROCLEAR" means Morgan Guaranty Trust Company of New York, Brussels office, as operator of the Euroclear system, and any and all successors thereto.

"EXCHANGE ACT" means the Securities Exchange Act of 1934, as amended.

"GAAP" means generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other entity as have been approved by a significant segment of the accounting profession, which are in effect on the date of this Indenture.

"GLOBAL NOTES" means, individually and collectively, each of the Restricted Global Notes and the Unrestricted Global Notes, substantially in the form of Exhibit A hereto issued in accordance with this Indenture.

"GLOBAL NOTE LEGEND" means the legend set forth in footnote 1 to Exhibit A hereto, which is required to be placed on all Global Notes issued under this Indenture.

"GOVERNMENT SECURITIES" means direct obligations of, or obligations guaranteed by, the United States of America, and the payment for which the United States pledges its full faith and credit.

"HEDGING OBLIGATIONS" means, with respect to any Person, the obligations of such Person under (i) interest rate swap agreements, interest rate cap agreements and interest rate collar agreements and (ii) other agreements or arrangements designed to protect such Person against fluctuations in interest rates or the value of foreign currencies purchased or received by the Company in the ordinary course of business.

"HOLDER" means a Person in whose name a Note is registered.

"INDEBTEDNESS" means, with respect to any Person, without duplication, (a) all indebtedness, obligations and other liabilities (contingent or otherwise) of such Person for borrowed money (including obligations of such Person in respect of overdrafts, foreign exchange contracts, currency exchange agreements, interest rate protection agreements, and any loans or advances from banks, whether or not evidenced by notes or similar instruments) or evidenced by credit or loan agreements, bonds, debentures, notes or other written obligations (whether or not the recourse of the lender is to the whole of the assets of such Person or to only a portion thereof) (other than any accounts payable or other accrued current liability or obligation incurred in the ordinary course of business in connection with the obtaining of materials or services), (b) all

reimbursement obligations and other liabilities (contingent or otherwise) of such Person with respect to letters of credit, bank guarantees or bankers' acceptances, (c) all obligations and liabilities (contingent or otherwise) of such Person in respect of leases of such Person required, in conformity with generally accepted accounting principles, to be accounted for as capitalized lease obligations on the balance sheet of such Person, (d) all obligations of such Person evidenced by a note or similar instrument given in connection with the acquisition of any business, properties or assets of any kinds, (e) all obligations of such Person issued or assumed as the deferred purchase price of property or services (excluding trade account payables and accrued liabilities arising in the ordinary course of

business), (f) all obligations (contingent or otherwise) of such Person under any lease or related document (including a purchase agreement) in connection with the lease of real property or improvements (or any personal property included as part of any such lease) which provides that such Person is contractually obligated to purchase or cause a third party to purchase the leased property and thereby guarantee a minimum residual value of the leased property to the lessor and the obligations of such Person under such lease or related document to purchase or to cause a third party to purchase such leased property (whether or not such lease transaction is characterized as an operating lease or a capitalized lease in accordance with generally accepted accounting principles), (g) all obligations (contingent or otherwise) of such Person with respect to any interest rate, currency or other swap, cap, floor or collar agreement, hedge agreement, forward contract, or other similar instrument or agreement or foreign currency hedge, exchange, purchase or similar instrument or agreement, (h) all direct or indirect guaranties, agreements to be jointly liable or similar agreements by such Person in respect of, and obligations or liabilities (contingent or otherwise) of such Person to purchase or otherwise acquire or otherwise assure a creditor against loss in respect of, indebtedness, obligations or liabilities of another Person of the kind described in clauses (a) through (g), and (i) any and all deferrals, renewals, extensions and refundings of, or amendments, modifications or supplements to, any indebtedness, obligation or liability of the kind described in clauses (a) through (h).

"INDENTURE" means this Indenture, as amended or supplemented from time to time.

"INDIRECT PARTICIPANT" means a Person who holds a beneficial interest in a Global Note through a Participant.

"LEGAL HOLIDAY" means a Saturday, a Sunday or a day on which banking institutions in the City of New York or Wilmington, Delaware or at a place of payment are authorized by law, regulation or executive order to remain closed. If a payment date is a Legal Holiday at a place of payment, payment may be made at that place on the next succeeding day that is not a Legal Holiday, and no interest shall accrue on such payment for the intervening period.

"NON-U.S. PERSON" means a Person who is not a U.S. Person.

"NOTES" has the meaning assigned to it in the preamble to this Indenture.

"OBLIGATIONS" means any principal, interest, penalties, fees, indemnifications, reimbursements, fees and expenses, damages and other liabilities payable under the documentation governing any Indebtedness.

"OFFERING" means the offering of the Notes by the Company.

"OFFICER" means, with respect to any Person, the Chairman of the Board, the Chief Executive Officer, the President, the Chief Operating Officer, the Chief Financial Officer, the Treasurer, any Assistant Treasurer, the Controller, the Secretary or any Vice-President of such Person.

"OFFICERS' CERTIFICATE" means a certificate signed on behalf of the Company by two Officers of the Company, one of whom must be the principal executive officer, the principal financial officer, the treasurer or the principal accounting officer of the Company, that meets the requirements of Section 12.05 hereof.

"OPINION OF COUNSEL" means an opinion from legal counsel who is reasonably acceptable to the Trustee, that meets the requirements of Section 12.05 hereof. The counsel may be an employee of or counsel to the Company, any

Subsidiary of the Company or the Trustee.

"PARTICIPANT" means, with respect to the Depositary, Euroclear or Cedel, a Person who has an account with the Depositary, Euroclear or Cedel, respectively (and, with respect to DTC, shall include Euroclear and Cedel).

"PERMITTED JUNIOR SECURITIES" means Equity Interests in the Company or debt securities that are subordinated to all Senior Indebtedness (and any debt securities issued in exchange for Senior Indebtedness) to substantially the same extent as, or to a greater extent than, the Notes are subordinated to Senior Indebtedness pursuant to the Indenture.

"PERSON" means any individual, corporation, partnership, limited liability company, joint venture, association, joint-stock company, trust, unincorporated organization or government or agency or political subdivision thereof (including any subdivision or ongoing business of any such entity or substantially all of the assets of any such entity, subdivision or business).

"PRIVATE PLACEMENT LEGEND" means the legend set forth in footnote 2 to Exhibit A hereto to be placed on all Notes issued under this Indenture except where otherwise permitted by the provisions of this Indenture.

"PURCHASE AGREEMENT" means the Purchase Agreement, dated as of May 1, 2001, by and between the Company and Credit Suisse First Boston Corporation, as representative of the several purchasers.

"QIB" means a "qualified institutional buyer" as defined in Rule 144A.

"REGISTRATION RIGHTS AGREEMENT" means the Registration Rights Agreement, dated as of May 7, 2001, by and among the Company and the other parties named on the signature pages thereof, as such agreement may be amended, modified or supplemented from time to time.

"REGULATION S" means Regulation S promulgated under the Securities Act.

"REGULATION S GLOBAL NOTE" means a global Note bearing the Private Placement Legend and deposited with or on behalf of the Depositary and registered in the name of the Depositary or its nominee, issued in a denomination equal to the outstanding principal amount of the Notes initially sold in reliance on Rule 903 of Regulation S.

"REPRESENTATIVE" means the indenture trustee or other trustee, agent or representative for any Senior Indebtedness.

"RESPONSIBLE OFFICER," when used with respect to the Trustee, means any officer within the Corporate Trust Administration of the Trustee (or any successor group of the Trustee) with direct responsibilities for the administration of this Indenture and also means, with respect to a particular corporate trust matter, any other officer to whom such matter is referred because of his knowledge of and familiarity with the particular subject.

"RESTRICTED DEFINITIVE NOTE" means a Definitive Note bearing the Private Placement Legend.

"RESTRICTED GLOBAL NOTE" means a Global Note bearing the Private Placement Legend.

"RESTRICTED PERIOD" means the 40-day restricted period as defined in Regulation S.

"RULE 144" means Rule 144 promulgated under the Securities Act.

"RULE 144A" means Rule 144A promulgated under the Securities Act.

"RULE 903" means Rule 903 promulgated under the Securities Act.

"RULE 904" means Rule 904 promulgated the Securities Act.

"SEC" means the Securities and Exchange Commission.

"SECURITIES ACT" means the Securities Act of 1933, as amended.

"SENIOR INDEBTEDNESS" means (i) the principal of, premium, if any, interest including all interest accruing subsequent to the commencement of any bankruptcy or similar proceeding, whether or not a claim for post-petition interest is allowable as a claim in any such proceeding, and rent payable on or in connection with, Indebtedness of the Company unless the instrument under which such Indebtedness is incurred expressly provides that it is on a parity with or subordinated in right of payment to the Notes, and (ii) all Obligations with respect to any of the foregoing, whether secured or unsecured, absolute or

contingent, due or to become due, outstanding on the date hereof or hereafter credited incurred, assumed, guaranteed or in effect guaranteed by the Company, including all deferrals, renewals, extensions and refundings of or amendments, modifications or supplements to, the foregoing. Notwithstanding anything to the contrary in the foregoing, Senior Indebtedness shall not include (x) any Indebtedness of the Company to any of its Subsidiaries or other Affiliates, (y) any Indebtedness incurred for the purchase of goods or materials or for services obtained in the ordinary course of business (other than with the proceeds of revolving credit borrowings permitted hereby) and (z) any Indebtedness that is incurred in violation of this Indenture.

"SHELF REGISTRATION STATEMENT" means the Shelf Registration Statement as defined in the Registration Rights Agreement.

"SUBSIDIARY" means, with respect to any Person, any corporation, association or other business entity of which more than 50% of the total voting power of shares of Capital Stock entitled (without regard to the occurrence of any contingency) to vote in the election of directors, managers or trustees thereof is at the time owned or controlled, directly or indirectly, by such Person or one or more of the other Subsidiaries of such Person or a combination thereof.

"TIA" means the Trust Indenture Act of 1939 (15 U.S.C. ss.ss. 77aaa-77bbbb) as in effect on the date on which this Indenture is qualified under the TIA; provided, however, that in the event the Trust Indenture Act of 1939 is amended after such date, "TIA" means, to the extent required by any such amendment, the Trust Indenture Act of 1939 as so amended.

"TRUSTEE" means the party named as such above until a successor replaces it in accordance with the applicable provisions of this Indenture and thereafter means the successor serving hereunder.

"UNRESTRICTED GLOBAL NOTE" means a permanent global Note substantially in the form of Exhibit A attached hereto that bears the Global Note Legend and that has the "Schedule of Exchanges of

Interests in the Global Note" attached thereto, and that is deposited with or on behalf of and registered in the name of the Depositary, representing a series of Notes that do not bear the Private Placement Legend.

"UNRESTRICTED DEFINITIVE NOTE" means one or more Definitive Notes that do not bear and are not required to bear the Private Placement Legend.

"U.S. PERSON" means a U.S. person as defined in Rule 902(o) under the Securities Act.

"VOTING STOCK" of a Person means any class or classes of Capital Stock pursuant to which the holders of capital stock under ordinary circumstances have the power to vote in the election of the board of directors, managers or trustees thereof of such Person or other persons performing similar functions irrespective of whether or not, at the time Capital Stock of any other class or classes shall have, or might have, voting power by reason of the happening of any contingency.

"WHOLLY OWNED SUBSIDIARY" of any Person means a Subsidiary of such Person all of the outstanding Capital Stock or other ownership interests of which (other than directors' qualifying shares) shall at the time be owned by such Person or by one or more Wholly Owned Subsidiaries of such Person or by such Person and one or more Wholly Owned Subsidiaries of such Person.

SECTION 1.02. OTHER DEFINITIONS.

Term	Defined in Section
"AUTHENTICATION ORDER"	2.02
"CHANGE OF CONTROL"	6.09
"CHANGE OF CONTROL OFFER"	6.09
"CHANGE OF CONTROL PAYMENT"	6.09
"CHANGE OF CONTROL PAYMENT DATE"	6.09
"CHANGE OF CONTROL PAYMENT NOTICE"	6.09
"DETERMINATION DATE"	4.06
"EVENT OF DEFAULT"	8.01
"EXPIRATION DATE"	4.06
"EXPIRATION DATE"	4.06
"MAKE-WHOLE PAYMENT"	3.07
"NOTICE DATE"	3.07
"PAYING AGENT"	2.03
"PROVISIONAL REDEMPTION"	3.07

SECTION 1.03. INCORPORATION BY REFERENCE OF TRUST INDENTURE ACT.

Whenever this Indenture refers to a provision of the TIA, the provision is incorporated by reference in and made a part of this Indenture.

The following TIA terms used in this Indenture have the following meanings:

"INDENTURE SECURITIES" means the Notes;

"INDENTURE SECURITY HOLDER" means a Holder of a Note;

"INDENTURE TO BE QUALIFIED" means this Indenture;

"INDENTURE TRUSTEE" or "INSTITUTIONAL TRUSTEE" means the Trustee; and

"OBLIGOR" on the Notes means the Company and any successor obligor upon the Notes.

All other terms used in this Indenture that are defined by the TIA, defined by TIA reference to another statute or defined by SEC rule under the TIA have the meanings so assigned to them.

SECTION 1.04. RULES OF CONSTRUCTION.

Unless the context otherwise requires:

(a) a term has the meaning assigned to it;

(b) an accounting term not otherwise defined has the meaning assigned to it in accordance with GAAP;

(c) "or" is not exclusive;

(d) words in the singular include the plural, and in the plural include the singular;

(e) provisions apply to successive events and transactions; and

(f) references to sections of or rules under the Securities Act shall be deemed to include substitute, replacement of successor sections or rules adopted by the SEC from time to time.

ARTICLE 2.
THE NOTES

SECTION 2.01. FORM AND DATING.

(a) GENERAL. The Notes and the Trustee's certificate of authentication shall be substantially in the form of Exhibit A hereto. The Notes may have notations, legends or endorsements required by law, stock exchange rule or usage. Each Note shall be dated the date of its authentication. The Notes shall be in denominations of $1,000 and integral multiples thereof.

The terms and provisions contained in the Notes shall constitute, and are hereby expressly made, a part of this Indenture and the Company and the Trustee, by their execution and delivery of this Indenture, expressly agree to such terms and provisions and to be bound thereby. However, to the extent any provision of any Note conflicts with the express provisions of this Indenture, the provisions of this Indenture shall govern and be controlling.

(b) GLOBAL NOTES. Notes issued in global form shall be substantially in the form of Exhibit A attached hereto (including the Global Note Legend thereon and the "Schedule of Exchanges of Interests in the Global Note" attached thereto). Notes issued in definitive form shall be substantially in the form of Exhibit A attached hereto (but without the Global Note Legend thereon and without the "Schedule of Exchanges of Interests in the Global Note" attached

thereto). Each Global Note shall represent such of the outstanding Notes as shall be specified therein and each shall provide that it shall represent the aggregate principal amount of outstanding Notes from time to time endorsed thereon and that the aggregate principal amount of outstanding Notes represented thereby may from time to time be reduced or increased, as appropriate, to reflect exchanges and redemptions. Any endorsement of a Global Note to reflect the amount of any increase or decrease in the aggregate principal amount of outstanding Notes represented thereby shall be made by the Trustee or the Custodian, at the direction of the Trustee, in accordance with instructions given by the Holder thereof as required by Section 2.12 hereof.

(c) EUROCLEAR AND CEDEL PROCEDURES APPLICABLE. The provisions of the "Operating Procedures of the Euroclear System" and "Terms and Conditions Governing Use of Euroclear" and the "General Terms and Conditions of Cedel Bank" and "Customer Handbook" of Cedel Bank shall be applicable to transfers of beneficial interests in the Regulation S Global Notes that are held by Participants through Euroclear or Cedel Bank.

SECTION 2.02. EXECUTION AND AUTHENTICATION.

An Officer shall sign the Notes for the Company by manual or facsimile signature. The Company's seal shall be reproduced on the Notes and may be in facsimile form.

If an Officer whose signature is on a Note no longer holds that office at the time a Note is authenticated, the Note shall nevertheless be valid.

A Note shall not be valid until authenticated by the manual signature of the Trustee. The signature shall be conclusive evidence that the Note has been authenticated under this Indenture.

The Trustee shall, upon a written order of the Company signed by an Officer (an "AUTHENTICATION ORDER"), authenticate Notes for original issue in the aggregate principal amount of up to $175,000,000. The Authentication Order shall specify the amount of Notes to be authenticated, shall provide that all Notes will be represented by a Restricted Global Note and the date on which each original issue of Notes is to be authenticated. The aggregate principal amount of Notes outstanding at any time may not exceed $175,000,000 except as provided in Section 2.07 hereof.

The Trustee shall act as initial authenticating agent. Thereafter, the Trustee may appoint an authenticating agent acceptable to the Company to authenticate Notes. An authenticating agent may authenticate Notes whenever the Trustee may do so. Each reference in this Indenture to authentication by the Trustee includes authentication by such agent. An authenticating agent has the same rights as an Agent to deal with the Company or an Affiliate of the Company.

SECTION 2.03. REGISTRAR, PAYING AGENT AND CONVERSION AGENT.

The Company shall maintain an office or agency where Notes may be presented for registration of transfer or for exchange ("REGISTRAR"), an office or agency where Notes may be presented for payment ("PAYING AGENT"), an office or agency where Notes may be presented for conversion ("CONVERSION AGENT") and an office or agent where notices and demands to or upon the Company in respect of the

Notes and this Indenture may be served. The Registrar shall keep a register of the Notes and of their registration of transfer and exchange. The Company may appoint one or more co-registrars and one or more additional paying agents and conversion agents. The term "Registrar" includes any co-registrar, the term "Paying Agent" includes any additional paying agent and the term "Conversion Agent" includes any additional conversion agent. The Company may change any Paying Agent, Conversion Agent or Registrar without notice to any Holder. The Company shall notify the Trustee in writing of the name and address of any Agent not a party to this Indenture. If the Company fails to appoint or maintain another entity as Registrar, Paying Agent, Conversion Agent or agent for service of notices and demands in any place required by this Indenture, or fails to give the foregoing notice, the Trustee shall act as such. The Company or any of its Subsidiaries may act as Paying Agent, Conversion Agent or Registrar.

The Company initially appoints The Depository Trust Company ("DTC") to act as Depositary with respect to the Global Notes.

The Company initially appoints the Trustee to act as the Registrar, Paying Agent and Conversion Agent and to act as Custodian with respect to the Global Notes.

SECTION 2.04. PAYING AGENT TO HOLD MONEY IN TRUST.

Prior to 10:00 a.m., New York City time, on each due date of the

principal of, premium, if any, or interest (including Additional Interest), on any Notes, the Company shall deposit with the Paying Agent a sum sufficient to pay such principal, premium, if any, or interest so becoming due. The Company shall require each Paying Agent other than the Trustee to agree in writing that the Paying Agent will hold in trust for the benefit of Holders or the Trustee all money held by the Paying Agent for the payment of principal, premium or Additional Interest, if any, or interest on the Notes, and will notify the Trustee of any default by the Company in making any such payment. While any such default continues, the Trustee may require a Paying Agent to pay all money held by it to the Trustee. The Company at any time may require a Paying Agent to pay all money held by it to the Trustee. Upon payment over to the Trustee, the Paying Agent (if other than the Company or a Subsidiary) shall have no further liability for the money. If the Company or a Subsidiary acts as Paying Agent, it shall before 10:00 a.m. New York City time on each due date of the principal of, premium, if any, or interest (including Additional Interest), segregate and hold in a separate trust fund for the benefit of the Holders all money held by it as Paying Agent. Upon any bankruptcy or reorganization proceedings relating to the Company, the Trustee shall serve as Paying Agent for the Notes.

SECTION 2.05. HOLDER LISTS.

The Trustee shall preserve in as current a form as is reasonably practicable the most recent list available to it of the names and addresses of all Holders and shall otherwise comply with TIA ss. 312(a). If the Trustee is not the Registrar, the Company shall furnish to the Trustee at least seven Business Days before each interest payment date and at such other times as the Trustee may request in writing, a list in such form and as of such date as the Trustee may reasonably require of the names and addresses of the Holders of Notes and the Company shall otherwise comply with TIA ss. 312(a).

SECTION 2.06. TRANSFER AND EXCHANGE.

(a) Subject to compliance with any applicable additional requirements contained in Section 2.12, when a Note is presented to a Registrar with a request to register a transfer thereof or to exchange such Note for an equal principal amount of Notes of other authorized denominations, the Registrar shall

register the transfer or make the exchange as requested; provided, however, that every Note presented or surrendered for registration of transfer or exchange shall be duly endorsed or accompanied by an assignment form and, if applicable, a transfer certificate each in the form included in Exhibit A, and in form satisfactory to the Registrar duly executed by the Holder thereof or its attorney duly authorized in writing. To permit registration of transfers and exchanges, upon surrender of any Note for registration of transfer or exchange at an office or agency maintained pursuant to Section 2.03, the Company shall execute and the Trustee shall authenticate Notes of a like aggregate principal amount at the Registrar's request. Any exchange or registration of transfer shall be without charge, except that the Company or the Registrar may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto, and provided, that this sentence shall not apply to any exchange pursuant to Section 2.07, 2.10, 2.12(a), 3.06, 6.09(a)(7), 4.02 (last paragraph) or 11.05.

Neither the Company, any Registrar nor the Trustee shall be required to exchange or register a transfer of (a) any Notes for a period of 15 days next preceding any mailing of a notice of Notes to be redeemed, (b) any Notes or portions thereof selected or called for redemption (except, in the case of redemption of a Note in part, the portion not to be redeemed) or (c) any Notes or portions thereof in respect of which a Note has been delivered and not withdrawn by the Holder thereof (except, in the case of the purchase of a Note in part, the portion not to be purchased).

All Notes issued upon any registration of transfer or exchange of Notes shall be valid obligations of the Company, evidencing the same debt and entitled to the same benefits under this Indenture, as the Notes surrendered upon such registration of transfer or exchange.

(b) Any Registrar appointed pursuant to Section 2.03 hereof shall provide to the Trustee such information as the Trustee may reasonably require in connection with the delivery by such Registrar of Notes upon registration of transfer or exchange of Notes.

(c) Each Holder of a Note agrees to indemnify the Company, the Registrar and the Trustee against any liability that may result from the registration of transfer, exchange or assignment of such Holder's Note in violation of any provision of this Indenture and/or applicable United States federal or state securities law.

The Trustee shall have no obligation or duty to monitor, determine or

inquire as to compliance with any restrictions on registration of transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Note (including any transfers between or among Participants or other beneficial owners of interests in any Global Note) other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance as to form with the express requirements hereof.

SECTION 2.07. REPLACEMENT NOTES.

If any mutilated Note is surrendered to the Trustee or the Company and the Trustee receives evidence to its satisfaction of the destruction, loss or theft of any Note, the Company shall issue and the Trustee, upon receipt of an Authentication Order, shall authenticate a replacement Note if the Trustee's requirements are met. If required by the Trustee or the Company, an indemnity bond must be supplied by the Holder that is sufficient in the judgment of the Trustee and the Company to protect the Company, the Trustee, any Agent and any authenticating agent from any loss that any of them may suffer if a Note is replaced. The Company may charge for its expenses in replacing a Note.

Every replacement Note is an additional obligation of the Company and shall be entitled to all of the benefits of this Indenture equally and proportionately with all other Notes duly issued hereunder.

SECTION 2.08. OUTSTANDING NOTES.

The Notes outstanding at any time are all the Notes authenticated by the Trustee except for those canceled by it, those delivered to it for cancellation, those reductions in the interest in a Global Note effected by the Trustee in accordance with the provisions hereof, and those described in this Section as not outstanding. Except as set forth in Section 2.09 hereof, a Note does not cease to be outstanding because the Company or an Affiliate of the Company holds the Note.

If a Note is replaced pursuant to Section 2.07 hereof, it ceases to be outstanding unless the Trustee receives proof satisfactory to it that the replaced Note is held by a protected purchaser.

If the principal amount of any Note is considered paid under Section 6.01 hereof, it ceases to be outstanding and interest on it ceases to accrue.

If the Paying Agent (other than the Company, a Subsidiary or an Affiliate of any thereof) holds, on a redemption date, a Change in Control Payment Date or maturity date, money sufficient to pay Notes payable on that date, then on and after that date such Notes shall be deemed to be no longer outstanding and shall cease to accrue interest.

SECTION 2.09. TREASURY NOTES.

In determining whether the Holders of the required principal amount of Notes have concurred in any notice, direction, waiver or consent, Notes owned by the Company, or by any Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Company, shall be considered as though not outstanding, except that for the purposes of determining whether the Trustee shall be protected in relying on any such notice, direction, waiver or consent, only Notes that the Trustee knows are so owned shall be so disregarded.

SECTION 2.10. TEMPORARY NOTES.

Until certificates representing Notes are ready for delivery, the Company may prepare and execute, and the Trustee, upon receipt of an Authentication Order, shall authenticate and deliver temporary Notes. Temporary Notes shall be substantially in the form of definitive Notes but may have variations that the Company considers appropriate for temporary Notes and as shall be reasonably acceptable to the Trustee. Without unreasonable delay, the Company shall prepare and the Trustee, upon receipt of an Authentication Order, shall authenticate and deliver definitive Notes in exchange for temporary Notes.

Holders of temporary Notes shall be entitled to all of the benefits of this Indenture.

SECTION 2.11. CANCELLATION.

The Company at any time may deliver Notes to the Trustee for cancellation. The Registrar, Paying Agent and Conversion Agent shall forward to the Trustee any Notes surrendered to them for registration of transfer, exchange, redemption, payment or conversion. The Trustee and no one else shall cancel all Notes surrendered for registration of transfer, exchange, redemption,

payment, conversion, replacement or cancellation and shall destroy canceled Notes (subject to the record retention requirement

of the Exchange Act), in accordance with their normal procedures. All Notes which are redeemed, purchased or otherwise acquired by the Company or any of its Subsidiaries prior to the maturity date shall be delivered to the Trustee for cancellation. Certification of the destruction of all canceled Notes shall be delivered to the Company. The Company may not hold or resell such Notes or issue new Notes to replace Notes that it has purchase or otherwise acquired or that have been delivered to the Trustee for cancellation.

SECTION 2.12. ADDITIONAL TRANSFER AND EXCHANGE REQUIREMENTS.

(a) TRANSFER AND EXCHANGE OF GLOBAL NOTES.

(1) Definitive Notes shall be issued in exchange for interests in the Global Notes only if (x) the Depositary notifies the Company that it is unwilling or unable to continue as depositary for the Global Notes or if it at any time ceases to be a "clearing agency" registered under the Exchange Act, if so required by applicable law or regulation and a successor depositary is not appointed by the Company within 90 days, or (y) an Event of Default has occurred and is continuing. In either case, the Company shall execute, and the Trustee shall, upon receipt of an Authentication Order (which the Company agrees to delivery promptly), authenticate and deliver Definitive Notes in an aggregate principal amount equal to the principal amount of such Global Notes in exchange therefor. Only Restricted Definitive Notes shall be issued in exchange for beneficial interests in Restricted Global Notes, and only Unrestricted Definitive Notes shall be issued in exchange for beneficial interests in Unrestricted Global Notes. Definitive Notes issued in exchange for beneficial interests in Global Notes shall be registered in such names and shall be in such authorized denominations as the Depositary, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee shall deliver or cause to be delivered such Definitive Notes to the persons in whose names such Notes are so registered. Such exchange shall be effected in accordance with the Applicable Procedures.

(2) Notwithstanding any other provisions of this Indenture other than the provisions set forth in Section 2.12(a)(1), a Global Note may not be transferred as a whole except by the Depositary to a nominee of the Depositary or by a nominee of the Depositary to the Depositary or another nominee of the Depositary or by the Depositary or any such nominee to a successor Depositary or a nominee of such successor Depositary.

(b) TRANSFER AND EXCHANGE OF DEFINITIVE NOTES. In the event that Definitive Notes are issued in exchange for beneficial interests in Global Notes in accordance with Section 2.12(a)(1) of this Indenture, on or after such event when Definitive Notes are presented by a Holder to a Registrar with a request:

(x) to register the transfer of the Definitive Notes to a person who will take delivery thereof in the form of Definitive Notes only; or

(y) to exchange such Definitive Notes for an equal principal amount of Definitive Notes of other authorized denominations,

such Registrar shall register the transfer or make the exchange as requested; provided, however, that the Definitive Notes presented or surrendered for register of transfer or exchange:

(1) shall be duly endorsed or accompanied by a written instrument of transfer in accordance with the proviso to the first paragraph of Section 2.06(a); and

(2) in the case of a Restricted Definitive Note, such request shall be accompanied by the following additional information and documents, as applicable:

(i) if such Restricted Definitive Note is being delivered to the Registrar by a Holder for registration in the name of such Holder, without transfer, or such Restricted Definitive Note is being transferred to the Company or a Subsidiary of the Company, a certification to that effect from such Holder (in substantially the form set forth in the

Transfer Certificate);

(ii) if such Restricted Definitive Note is being transferred to a person the Holder reasonably believes is a QIB in accordance with Rule 144A or is being transferred to a Non-U.S. Person in an offshore transaction in accordance with Rule 903 or Rule 904 or pursuant to an effective registration statement under the Securities Act, a certification to that effect from such Holder (in substantially the form set forth in the Transfer Certificate); or

(iii) if such Restricted Definitive Note is being transferred (A) pursuant to an exemption from the registration requirements of the Securities Act in accordance with Rule 144 or (B) pursuant to an exemption from the registration requirements of the Securities Act (other than pursuant to Rule 144A, Rule 144, Rule 903 or Rule 904) and as a result of which, in the case of a Note transferred pursuant to this clause (B), such Note shall cease to be a "restricted security" within the meaning of Rule 144, a certification to that effect from the Holder (in substantially the form set forth in the Transfer Certificate) and, if the Company or such Registrar so requests, a customary opinion of counsel, certificates and other information reasonably acceptable to the Company and such Registrar to the effect that such transfer is in compliance with the registration requirements of the Securities Act.

(c) TRANSFER OF A BENEFICIAL INTEREST IN A RESTRICTED GLOBAL NOTE FOR A BENEFICIAL INTEREST IN AN UNRESTRICTED GLOBAL NOTE. Any person having a beneficial interest in a Restricted Global Note may upon request, subject to the Applicable Procedures, transfer such beneficial interest to a person who is required or permitted to take delivery thereof in the form of a beneficial interest in an Unrestricted Global Note. Upon receipt by the Trustee of written instructions, or such other form of instructions as is customary for the Depositary, from the Depositary or its nominee on behalf of any person having a beneficial interest in a Restricted Global Note and the following additional information and documents in such form as is customary for the Depositary from the Depositary or its nominee on behalf of the person having such beneficial interest in the Restricted Global Note (all of which may be submitted by facsimile or electronically):

(1) if such beneficial interest is being transferred pursuant to an effective registration statement under the Securities Act, a certification to that effect from the transferor (in substantially the form set forth in the Transfer Certificate); or

(2) if such beneficial interest is being transferred (i) pursuant to an exemption from the registration requirements of the Securities Act in accordance with Rule 144 or (ii) pursuant to an exemption from the registration requirements of the Securities Act (other

than pursuant to Rule 144A, Rule 144, Rule 903 or Rule 904) and as a result of which, in the case of a Note transferred pursuant to this clause (ii), such Note shall cease to be a "restricted security" within the meaning of Rule 144, a certification to that effect from the transferor (in substantially the form set forth in the Transfer Certificate) and, if the Company or the Trustee so requests, a customary opinion of counsel, certificates and other information reasonably acceptable to the Company and the Trustee to the effect that such transfer is in compliance with the registration requirements of the Securities Act.

The Trustee, as a Registrar and Custodian, shall reduce or cause to be reduced the aggregate principal amount of the Restricted Global Note by the appropriate principal amount and shall increase or cause to be increased the aggregate principal amount of the Unrestricted Global Note by a like principal amount. Such transfer shall otherwise be effected in accordance with the Applicable Procedures. If no Unrestricted Global Note is then outstanding, the Company shall execute and the Trustee shall, upon receipt of an Authentication Order (which the Company agrees to deliver promptly), authenticate and deliver an Unrestricted Global Note.

(d) TRANSFER OF A BENEFICIAL INTEREST IN AN UNRESTRICTED GLOBAL NOTE FOR A BENEFICIAL INTEREST IN A RESTRICTED GLOBAL NOTE. Any person having a beneficial interest in an Unrestricted Global Note may upon request, subject to the Applicable Procedures, transfer such beneficial interest to a person who is required or permitted to take delivery thereof in the form of a Restricted Global Note (it being understood that only QIBs may own beneficial interests in

Restricted Global Notes). Upon receipt by the Trustee of written instructions or such other form of instructions as is customary for the Depositary, from the Depositary or its nominee, on behalf of any person having a beneficial interest in an Unrestricted Global Note and, in such form as is customary for the Depositary, from the Depositary or its nominee on behalf of the person having such beneficial interest in the Unrestricted Global Note (all of which may be submitted by facsimile or electronically) a certification from the transferor (in substantially the form set forth in the Transfer Certificate) to the effect that such beneficial interest is being transferred to a person that the transferor reasonably believes is a QIB in accordance with Rule 144A. The Trustee, as a Registrar and Custodian, shall reduce or cause to be reduced the aggregate principal amount of the Unrestricted Global Note by the appropriate principal amount and shall increase or cause to be increased the aggregate principal amount of the Restricted Global Note by a like principal amount. Such transfer shall otherwise be effected in accordance with the Applicable Procedures. If no Restricted Global Note is then outstanding, the Company shall execute and the Trustee shall, upon receipt of an Authentication Order (which the Company agrees to deliver promptly), authenticate and deliver a Restricted Global Note.

(e) TRANSFERS OF DEFINITIVE NOTES FOR BENEFICIAL INTEREST IN GLOBAL NOTES. In the event that Definitive Notes are issued in exchange for beneficial interests in Global Notes and, thereafter, the events or conditions specified in Section 2.12(a)(1) which required such exchange shall cease to exist, the Company shall mail notice to the Trustee and to the Holders stating that Holders may exchange Definitive Notes for interests in Global Notes by complying with the procedures set forth in this Indenture and briefly describing such procedures and the events or circumstances requiring that such notice be given. Thereafter, if Definitive Notes are presented by a Holder to a Registrar with a request:

(x) to register the transfer of such Definitive Notes to a person who will take delivery thereof in the form of a beneficial interest in a Global Note, which request shall specify whether such Global Note will be a Restricted Global Note or an Unrestricted Global Note; or

(y) to exchange such Definitive Notes for an equal principal amount of beneficial interests in a Global Note, which beneficial interests will be owned by the Holder transferring such Definitive Notes (provided that in the case of such an exchange, Restricted Definitive Notes may be exchanged only for Restricted Global Notes and Unrestricted Definitive Notes may be exchanged only for Unrestricted Global Notes),

the Registrar shall register the transfer or make the exchange as requested by canceling such Definitive Note and causing, or directing the Custodian to cause, the aggregate principal amount of the applicable Global Note to be increased accordingly and, if no such Global Note is then outstanding, the Company shall issue and the Trustee, upon receipt of an Authentication Order, shall authenticate and deliver a new Global Note; provided, however, that the Definitive Notes presented or surrendered for registration of transfer or exchange:

(1) shall be duly endorsed or accompanied by a written instrument of transfer in accordance with the proviso to Section 2.06;

(2) in the case of a Restricted Definitive Note to be transferred for a beneficial interest in an Unrestricted Global Note, such request shall be accompanied by the following additional information and documents, as applicable:

(i) if such Restricted Definitive Note is being transferred pursuant to an effective registration statement under the Securities Act, a certification to that effect from such Holder (in substantially the form set forth in the Transfer Certificate); or

(ii) if such Restricted Definitive Note is being transferred pursuant to (A) an exemption from the registration requirements of the Securities Act in accordance with Rule 144 or (B) pursuant to an exemption from the registration requirements of the Securities Act (other than pursuant to Rule 144A, Rule 144, Rule 903 or Rule 904) and as a result of which, in the case of a Note transferred pursuant to this clause (B), such Note shall cease to be a "restricted security" within the meaning of Rule 144, a certification to that effect from such Holder (in substantially the form set forth in the Transfer Certificate), and, if the Company or the Registrar so requests, a customary opinion of counsel,

certificates and other information reasonably acceptable to the Company and the Trustee to the effect that such transfer is in compliance with the registration requirements of the Securities Act;

(3) in the case of a Restricted Definitive Note to be transferred or exchanged for a beneficial interest in a Restricted Global Note, such request shall be accompanied by a certification from such Holder (in substantially the form set forth in the Transfer Certificate) to the effect that such Restricted Definitive Note is being transferred to a person the Holder reasonably believes is a QIB (which, in the case of an exchange, shall be such Holder) in accordance with Rule 144A or is being transferred to a Non-U.S. Person in an offshore transaction in accordance with Rule 903 or Rule 904;

(4) in the case of an Unrestricted Definitive Note to be transferred or exchanged for a beneficial interest in an Unrestricted Global Note, such request need not be accompanied by any additional information or documents; and

(5) in the case of an Unrestricted Definitive Note to be transferred or exchanged for a beneficial interest in a Restricted Global Note, such request shall be accompanied by a certification from such Holder (in substantially the form set forth in the Transfer Certificate) to the effect that such Unrestricted Definitive Note is being transferred to a person the Holder reasonably believes is a QIB (which, in the case of an exchange, shall be such Holder) in accordance with Rule 144A or is being transferred to a Non-U.S. Person in an offshore transaction in accordance with Rule 903 or Rule 904.

(f) LEGENDS.

(1) Except as permitted by the following paragraphs (2) and (3), each Global Note and Definitive Note (and all Notes issued in exchange therefor or upon registration of transfer or replacement thereof) shall bear a legend in substantially the form called for by footnote 2 to Exhibit A hereto (each a "Restricted Global Note" for so long as it is required by this Indenture to bear such legend). Each Restricted Global Note shall have attached thereto a certificate (a "Transfer Certificate") in substantially the form called for by footnote 5 to Exhibit A hereto.

(2) Upon any sale or transfer of a Restricted Global Note (w) after the expiration of the holding period applicable to sales of the Notes under Rule 144(k) of the Notes Act, (x) pursuant to Rule 144, (y) pursuant to an effective registration statement under the Notes Act or (z) pursuant to any other available exemption (other than Rule 144A) from the registration requirements of the Securities Act and as a result of which, in the case of a Note transferred pursuant to this clause (z), such Note shall cease to be a "restricted security" within the meaning of Rule 144:

(i) in the case of any Restricted Definitive Note, any Registrar shall permit the Holder thereof to exchange such Restricted Definitive Note for an Unrestricted Definitive Note, or (under the circumstances described in Section 2.12(e)) to transfer such Restricted Definitive Note to a transferee who shall take such Note in the form of a beneficial interest in an Unrestricted Global Note, and in each case shall rescind any restriction on the transfer of such Note; provided, however, that the Holder of such Restricted Definitive Note shall, in connection with such exchange or transfer, comply with the other applicable provisions of this Section 2.12; and

(ii) in the case of any beneficial interest in a Restricted Global Note, the Trustee shall permit the beneficial owner thereof to transfer such beneficial interest to a transferee who shall take such interest in the form of a beneficial interest in an Unrestricted Global Note and shall rescind any restriction on transfer of such beneficial interest; provided, that such Unrestricted Global Note shall continue to be subject to the provisions of Section 2.12(a)(2); and provided, further, that the owner of such beneficial interest shall, in connection with such transfer, comply with the other applicable provisions of this Section 2.12.

(3) Upon the exchange, registration of transfer or replacement

of Notes not bearing the legend described in paragraph (1) above, the Company shall execute, and the Trustee shall authenticate and deliver Notes that do not bear such legend and that do not have a Transfer Certificate attached thereto.

(4) After the expiration of the holding period pursuant to Rule 144(k) of the Securities Act, the Company may with the consent of the Holder of a Restricted Global Note or Restricted Definitive Note, remove any restriction of transfer on such Note, and the Company shall execute, and the Trustee shall authenticate and deliver Notes that do not bear such legend and that do not have a Transfer Certificate attached thereto.

(g) TRANSFERS TO THE COMPANY. Nothing in this Indenture or in the Notes shall prohibit the sale or other transfer of any Notes (including beneficial interests in Global Notes) to the Company or any of its Subsidiaries, which Notes shall thereupon be cancelled in accordance with Section 2.11.

SECTION 2.13. CUSIP NUMBERS.

The Company in issuing the Notes may use "CUSIP" numbers (if then generally in use), and, if so, the Trustee shall use "CUSIP" numbers in notices of redemption or purchase as a convenience to Holders; provided that any such notice may state that no representation is made as to the correctness of such numbers either as printed on the Notes or as contained in any notice of a redemption or purchase and that reliance may be placed only on the other identification numbers printed on the Notes, and any such redemption or purchase shall not be affected by any defect in or omission of such numbers. The Company will promptly notify the Trustee of any change in the "CUSIP" numbers.

SECTION 2.14. DEFAULTED INTEREST.

If the Company defaults in a payment of interest on the Notes, it shall pay the defaulted interest in any lawful manner plus, to the extent lawful, interest payable on the defaulted interest, to the Persons who are Holders on a subsequent special record date, in each case at the rate provided in the Notes and in Section 4.01 hereof. The Company shall notify the Trustee in writing of the amount of defaulted interest proposed to be paid on each Note and the date of the proposed payment. The Company shall fix or cause to be fixed each such special record date and payment date, PROVIDED that no such special record date shall be less than 10 days prior to the related payment date for such defaulted interest. At least 15 days before the special record date, the Company (or, upon the written request of the Company, the Trustee in the name and at the expense of the Company) shall mail or cause to be mailed to Holders a notice that states the special record date, the related payment date and the amount of such interest to be paid.

ARTICLE 3.
REDEMPTION AND PREPAYMENT

SECTION 3.01. NOTICES TO TRUSTEE.

If the Company elects to redeem Notes pursuant to the provisional or optional redemption provisions of Section 3.07 hereof, it shall furnish to the Trustee, at least 20 days but not more than 60 days before a redemption date, an Officers' Certificate setting forth (i) the clause of this Indenture pursuant to which the redemption shall occur, (ii) the redemption date, (iii) the principal amount of Notes to be redeemed and (iv) the redemption price.

SECTION 3.02. SELECTION OF NOTES TO BE REDEEMED.

If less than all of the Notes are to be redeemed or purchased in an offer to purchase at any time, the Trustee shall select the Notes to be redeemed or purchased among the Holders of the Notes in

compliance with the requirements of the principal national securities exchange, if any, on which the Notes are listed or, if the Notes are not so listed, on a PRO RATA basis, by lot or in accordance with any other method the Trustee considers fair and appropriate. In the event of partial redemption by lot, the particular Notes to be redeemed shall be selected, unless otherwise provided herein, not less than 20 nor more than 60 days prior to the redemption date by the Trustee from the outstanding Notes not previously called for redemption.

The Trustee shall promptly notify the Company in writing of the Notes

selected for redemption and, in the case of any Note selected for partial redemption, the principal amount thereof to be redeemed. Notes and portions of Notes selected shall be in amounts of $1,000 or whole multiples of $1,000; except that if all of the Notes of a Holder are to be redeemed, the entire outstanding amount of Notes held by such Holder, even if not a multiple of $1,000, shall be redeemed. Except as provided in the preceding sentence, provisions of this Indenture that apply to Notes called for redemption also apply to portions of Notes called for redemption.

SECTION 3.03. NOTICE OF REDEMPTION.

At least 20 days but not more than 60 days before a redemption date, the Company shall mail or cause to be mailed, by first class mail, a notice of redemption to each Holder whose Notes are to be redeemed at its registered address.

The notice shall identify the Notes to be redeemed and shall state:

(a) the redemption date;

(b) the redemption price;

(c) the then current Conversion Price;

(d) if any Note is being redeemed in part, the portion of the principal amount of such Note to be redeemed and that, after the redemption date upon surrender of such Note, a new Note or Notes in principal amount equal to the unredeemed portion shall be issued upon cancellation of the original Note;

(e) the name and address of the Paying Agent and Conversion Agent;

(f) that Notes called for redemption must be surrendered to the Paying Agent to collect the redemption price;

(g) that Notes called for redemption must be presented and surrendered to a Paying Agent to collect the Redemption Price;

(h) that Holders who wish to convert Notes must surrender such Notes for conversion no later than the close of business on the Business Day immediately preceding the Redemption Date and must satisfy the other requirements in paragraph 8 of the Notes;

(i) that, unless the Company defaults in making such redemption payment, interest on Notes called for redemption ceases to accrue on and after the redemption date;

(j) the paragraph of the Notes and/or Section of this Indenture pursuant to which the Notes called for redemption are being redeemed; and

(k) that no representation is made as to the correctness or accuracy of the CUSIP number, if any, listed in such notice or printed on the Notes.

At the Company's request, the Trustee shall give the notice of redemption in the Company's name and at its expense; PROVIDED, HOWEVER, that the Company shall have delivered to the Trustee, at least 40 days prior to the redemption date, an Officers' Certificate requesting that the Trustee give such notice and setting forth the information to be stated in such notice as provided in the preceding paragraph.

SECTION 3.04. EFFECT OF NOTICE OF REDEMPTION.

Once notice of redemption is mailed in accordance with Section 3.03 hereof, Notes called for redemption become irrevocably due and payable on the redemption date at the redemption price. A notice of redemption may not be conditional.

SECTION 3.05. DEPOSIT OF REDEMPTION PRICE.

One Business Day prior to the redemption date, the Company shall deposit with the Trustee or with the Paying Agent money sufficient to pay the redemption price of and accrued interest on all Notes to be redeemed on that date. The Trustee or the Paying Agent shall promptly return to the Company any money deposited with the Trustee or the Paying Agent by the Company in excess of the amounts necessary to pay the redemption price of, and accrued interest on, all Notes to be redeemed.

If the Company complies with the provisions of the preceding paragraph, on and after the redemption date, interest shall cease to accrue on the Notes or the portions of Notes called for redemption. If a Note is redeemed on or after

an interest record date but on or prior to the related interest payment date, then any accrued and unpaid interest shall be paid to the Person in whose name such Note was registered at the close of business on such record date. If any Note called for redemption shall not be so paid upon surrender for redemption because of the failure of the Company to comply with the preceding paragraph, interest shall be paid on the unpaid principal, from the redemption date until such principal is paid, and to the extent lawful on any interest not paid on such unpaid principal, in each case at the rate provided in the Notes and in Section 6.01 hereof.

SECTION 3.06. NOTES REDEEMED IN PART.

Upon surrender of a Note that is redeemed in part, the Company shall issue and, upon the Company's written request, the Trustee shall authenticate for the Holder at the expense of the Company a new Note equal in principal amount to the unredeemed portion of the Note surrendered.

SECTION 3.07. PROVISIONAL AND OPTIONAL REDEMPTION.

(a) The Notes may be redeemed at the election of the Company, as a whole or in part from time to time, at any time prior to May 20, 2004 (a "PROVISIONAL REDEMPTION"), upon at least 20 and not more than 60 days' notice by mail to the Holders of the Notes at a redemption price equal to $1,000 per $1,000 principal amount of the Notes redeemed plus accrued and unpaid interest, if any (such amount, together with the Make-Whole Payment described below, the "PROVISIONAL REDEMPTION PRICE"), to but excluding the date of redemption (the "PROVISIONAL REDEMPTION DATE") if (1) the Closing Sale Price of the Common Stock has exceeded 150% of the Conversion Price for at least 20 Trading Days within a period of any 30 consecutive Trading Days ending on the Trading Day prior to the date of mailing of the notice of Provisional Redemption (the "NOTICE DATE"), and (2) a shelf registration statement covering

resales of the Notes and the Common Stock issuable upon conversion thereof is effective and available for use and is expected to remain effective and available for use for the 30 days following the Provisional Redemption Date unless registration is no longer required.

Upon any such Provisional Redemption, the Company, shall make an additional payment, at its option, in cash or Common Stock or a combination of cash and Common Stock (the "MAKE-WHOLE PAYMENT") with respect to the Notes called for redemption to holders on the Notice Date in an amount equal to $150.00 per $1,000 principal amount of the Notes, less the amount of any interest actually paid (including, if the Provisional Redemption Date occurs after a record date but before an interest payment date, any interest paid or to be paid in connection with such interest payment date) on such Notes prior to the Provisional Redemption Date. Payments made in Common Stock will be valued at 97% of the average closing sales prices of Common Stock for the five Trading Days ending on the day prior to the Redemption Date. The Company shall make the Make-Whole Payment on all Notes called for Provisional Redemption, including those Notes converted into Common Stock between the Notice Date and the Provisional Redemption Date.

(b) Except as set forth in clause (a) of this Section 3.07, the Company shall not have the option to redeem the Notes pursuant to this Section 3.07 prior to May 20, 2004. Thereafter, the Company shall have the option to redeem the Notes, in whole or in part, at the redemption prices (expressed as percentages of principal amount) set forth below plus accrued and unpaid interest and Additional Interest thereon, if any, to the applicable redemption date, if redeemed during the periods set forth below:

Period	Percentage
Beginning May 20, 2004 through May 14, 2005.....	101.25%
Beginning May 15, 2005 and thereafter.....	100.00%

(c) Any redemption pursuant to this Section 3.07 shall be made pursuant to the provisions of Section 3.01 through 3.06 hereof.

SECTION 3.08. MANDATORY REDEMPTION.

The Company shall not be required to make mandatory redemption payments with respect to the Notes.

ARTICLE 4.
Conversion

SECTION 4.01. CONVERSION PRIVILEGE.

A Holder of a Note may convert it into fully paid and nonassessable

shares of Common Stock at any time prior to maturity at the Conversion Price then in effect, except that, with respect to any Note called for redemption or submitted or presented for purchase pursuant to Section 6.09, such conversion right shall terminate at the close of business on the Business Day immediately preceding the Redemption Date or Change in Control Payment Date, as the case may be (unless the Company shall default in making the redemption payment or Change in Control Payment when it becomes due, in which case the conversion right shall terminate on the date such default is cured and such Note is redeemed or purchased, as the case may be). The number of shares of Common Stock issuable upon conversion of a

Note is determined by dividing the principal amount of such Note by the conversion price in effect on the Conversion Date (the "CONVERSION PRICE").

The initial Conversion Price is stated in Section 8 of the Notes and is subject to adjustment as provided in this Article 4.

A Holder may convert a portion of a Note equal to any integral multiple of $1,000. Provisions of this Indenture that apply to conversion of all of a Note also apply to conversion of a portion of it.

A Note in respect of which a Holder has delivered a Change in Control Payment Notice pursuant to Section 6.09 exercising the option of such Holder to require the Company to purchase such Note may be converted only if such Change in Control Payment Notice is withdrawn by a written notice of withdrawal delivered to a Paying Agent prior to the close of business on the Business Day immediately preceding the Change in Control Payment Date in accordance with Section 6.09.

A Holder of Notes is not entitled to any rights of a holder of Common Stock until such Holder has converted its Notes to Common Stock, and only to the extent such Notes are deemed to have been converted into Common Stock pursuant to this Article 4.

SECTION 4.02. CONVERSION PROCEDURE.

To convert a Note, a Holder must satisfy the requirements in Section 8 of the Notes. The date on which the Holder satisfies all of those requirements is the conversion date (the "CONVERSION DATE"). As soon as practicable after the Conversion Date, the Company shall deliver to the Holder through the Conversion Agent a certificate for the number of whole shares of Common Stock issuable upon the conversion and a check for any fractional share determined pursuant to Section 4.03 hereof. The Person in whose name the certificate is registered shall become the stockholder of record on the Conversion Date and, as of such date, such Person's rights as a Holder shall cease; PROVIDED, HOWEVER, that no surrender of a Note on any date when the stock transfer books of the Company shall be closed shall be effective to constitute the Person entitled to receive the shares of Common Stock upon such conversion as the stockholder of record of such shares of Common Stock on such date, but such surrender shall be effective to constitute the Person entitled to receive such shares of Common Stock as the stockholder of record thereof for all purposes at the close of business on the next succeeding day on which such stock transfer books are open; PROVIDED FURTHER, HOWEVER, that such conversion shall be at the Conversion Price in effect on the date that such Note shall have been surrendered for conversion, as if the stock transfer books of the Company had not been closed.

No payment or other adjustment shall be made for accrued interest or dividends or distributions on any Common Stock issued upon conversion of the Notes. If any Notes are converted during any period after any record date for the payment of an installment of interest but before the next interest payment date, interest for such notes will be paid on the next interest payment date, notwithstanding such conversion, to the Holders of such Notes. Any Notes that are, however, delivered to the Company for conversion after any record date but before the next interest payment date must, except as described in the next sentence, be accompanied by a payment equal to the interest payable on such interest payment date on the principal amount of Notes being converted. The payment to the Company described in the preceding sentence shall not be required if, during that period between a record date and the next interest payment date, a conversion occurs on or after the date that the Company has issued a redemption notice or Change of Control Offer and prior to the date of redemption stated in such notice or the Change on

Control Payment Date, as the case may be. No fractional shares will be issued upon conversion, but a cash adjustment will be made for any fractional shares.

If a Holder converts more than one Note at the same time, the number of whole shares of Common Stock issuable upon the conversion shall be based on the total principal amount of Notes converted.

Upon surrender of a Note that is converted in part, the Trustee shall authenticate for the Holder a new Note equal in principal amount to the unconverted portion of the Note surrendered.

SECTION 4.03. FRACTIONAL SHARES.

The Company will not issue fractional shares of Common Stock upon conversion of a Note. In lieu thereof, the Company will pay an amount in cash based upon the Closing Sale Price of the Common Stock on the last trading day prior to the date of conversion.

SECTION 4.04. TAXES ON CONVERSION.

The issuance of certificates for shares of Common Stock upon the conversion of any Note shall be made without charge to the converting Holder for such certificates or for any tax in respect of the issuance of such certificates, and such certificates shall be issued in the respective names of, or in such names as may be directed by, the Holder or Holders of the converted Note; PROVIDED, HOWEVER, that in the event that certificates for shares of Common Stock are to be issued in a name other than the name of the Holder of the Note converted, such Note, when surrendered for conversion, shall be accompanied by an instrument of transfer, in form satisfactory to the Company, duly executed by the registered holder thereof or his duly authorized attorney; and PROVIDED FURTHER, HOWEVER, that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any such certificates in a name other than that of the Holder of the converted Note, and the Company shall not be required to issue or deliver such certificates unless or until the Person or Persons requesting the issuance thereof shall have paid to the Company the amount of such tax or shall have established to the satisfaction of the Company that such tax has been paid or is not applicable.

SECTION 4.05. COMPANY TO PROVIDE STOCK.

The Company shall at all times reserve and keep available, free from preemptive rights, out of its authorized but unissued Common Stock, solely for the purpose of issuance upon conversion of Notes as herein provided, a sufficient number of shares of Common Stock to permit the conversion of all outstanding Notes for shares of Common Stock. All shares of Common Stock which may be issued upon conversion of the Notes shall be duly authorized, validly issued, fully paid and nonassessable and free of preemptive rights and free of any lien or adverse claim when so issued.

The Company will endeavor promptly to comply with all federal and state securities laws regulating the offer and delivery of shares of Common Stock upon conversion of Notes, if any, and will list or cause to have quoted such shares of Common Stock on each national securities exchange or on the Nasdaq National Market or other over-the-counter market or such other market on which the Common Stock is then listed or quoted; PROVIDED, HOWEVER, that if rules of such automated quotation system or exchange permit the Company to defer the listing of such Common Stock until the first conversion of the Notes into Common Stock in accordance with the provisions of this Indenture, the Company covenants

to list such Common Stock issuable upon conversion of the Notes in accordance with the requirements of such automated quotation system or exchange at such time.

SECTION 4.06. ADJUSTMENT OF CONVERSION PRICE.

The Conversion Price shall be subject to adjustment from time to time as follows:

(a) STOCK SPLIT AND COMBINATIONS. In case the Company, at any time or from time to time after the issuance date of the Notes (a) subdivides or splits the outstanding shares of its Common Stock, (b) combines or reclassifies the outstanding shares of its Common Stock into a smaller number of shares or (c) issues by reclassification of the shares of its Common Stock any shares of its capital stock, then the Conversion Price in effect immediately prior to that event or the record date for that event, whichever is earlier, will be adjusted so that the holder of any Notes thereafter surrendered for conversion will be entitled to receive the number of shares of the Company's Common Stock or of its other securities which the Holder would have owned or have been entitled to receive after the occurrence of any of the events described above, had those Notes been surrendered for conversion immediately before the occurrence of that event or the record date for that event, whichever is earlier;

(b) STOCK DIVIDENDS IN COMMON STOCK. In case the Company, at any time or from time to time after the issuance date of the Notes, pays a dividend or make a distribution in shares of its Common Stock on any class of its capital stock other than dividends or distributions of shares of Common Stock or other securities with respect to which adjustments are provided in paragraph (1) above or with respect to payments of interest or dividend obligations with respect to a particular series of capital stock in accordance with the terms of such capital stock, the Conversion Price will be adjusted so that the Holder of each Note will be entitled to receive, upon conversion of that Note, the number of shares of the Company's Common Stock determined by multiplying (a) the Conversion Price by (b) a fraction, the numerator of which will be the number of shares of Common Stock outstanding and the denominator of which will be the sum of that number of shares and the total number of shares issued in that dividend or distribution;

(c) ISSUANCE OF RIGHTS OR WARRANTS. In case the Company issues to all holders of its Common Stock rights or warrants entitling those holders for a period of not more than 60 days to subscribe for or purchase its Common Stock or securities convertible into its Common Stock at a price per share or conversion price per share less than the Current Market Price, the Conversion Price in effect immediately before the close of business on the record date fixed for determination of shareholders entitled to receive those rights or warrants will be reduced by multiplying the Conversion Price by a fraction, the numerator of which is the sum of the number of shares of the Company's Common Stock outstanding at the close of business on that record date and the number of shares of Common Stock that the aggregate offering price of the total number of shares of the Company's Common Stock so offered for subscription or purchase would purchase at the Current Market Price and the denominator of which is the sum of the number of shares of Common Stock outstanding at the close of business on that record date and the number of additional shares of the Company's Common Stock so offered for subscription or purchase. For purposes of this paragraph (3), the issuance of rights or warrants to subscribe for or purchase securities convertible into shares of the Company's Common Stock will be deemed to be the issuance of rights or warrants to purchase shares of the Company's Common Stock into which those securities are convertible at an aggregate offering price equal to the sum of the aggregate offering price of those securities and the minimum aggregate amount, if any, payable upon conversion of those securities into shares of the Company's Common Stock. This adjustment will be made successively whenever any such event occurs;

(d) DISTRIBUTION OF INDEBTEDNESS, SECURITIES OR ASSETS. In case the Company shall distribute to all or substantially all holders of its Common Stock any shares of capital stock of the Company (other than Common Stock), evidences of indebtedness or other non-cash assets (including securities of any person other than the Company but excluding (1) dividends or distributions paid exclusively in cash or (2) dividends or distributions referred to in subsection (b) of this Section 4.06), or shall distribute to all or substantially all holders of its Common Stock rights or warrants to subscribe for or purchase any of its securities (excluding those rights and warrants referred to in subsection (c) of this Section 4.06 and also excluding the distribution of rights to all holders of Common Stock pursuant to the adoption of a stockholders rights plan or the detachment of such rights under the terms of such stockholder rights plan), then in each such case the Conversion Price shall be adjusted so that the same shall equal the price determined by multiplying the current Conversion Price by a fraction of which the numerator shall be the current market price per share (as defined in subsection (g) of this Section 4.06) of the Common Stock on the record date mentioned below less the fair market value on such record date (as determined by the Board of Directors, whose determination shall be conclusive evidence of such fair market value and which shall be evidenced by an Officers' Certificate delivered to the Trustee) of the portion of the capital stock, evidences of indebtedness or other non-cash assets so distributed or of such rights or warrants applicable to one share of Common Stock (determined on the basis of the number of shares of Common Stock outstanding on the record date), and of which the denominator shall be the current market price per share (as defined in subsection (g) of this Section 4.06) of the Common Stock on such record date. Such adjustment shall be made successively whenever any such distribution is made and shall become effective immediately after the record date for the determination of shareholders entitled to receive such distribution.

(e) In case the Company shall, by dividend or otherwise, at any time distribute (a "TRIGGERING DISTRIBUTION") to all or substantially all holders of its Common Stock cash in an aggregate amount that, together with the aggregate amount of (A) any cash and the fair market value (as determined by the Board of Directors, whose determination shall be conclusive evidence thereof and which shall be evidenced by an Officers' Certificate delivered to the Trustee) of any other consideration payable in respect of any tender offer by the Company or a Subsidiary of the Company for Common Stock consummated within the 12 months preceding the date of payment of the Triggering Distribution and in respect of which no Conversion Price adjustment pursuant to this Section 4.06 has been made

and (B) all other cash distributions to all or substantially all holders of its Common Stock made within the 12 months preceding the date of payment of the Triggering Distribution and in respect of which no Conversion Price adjustment pursuant to this Section 4.06 has been made, exceeds an amount equal to 10.0% of the product of the current market price per share of Common Stock (as determined in accordance with subsection (g) of this Section 4.06) on the Business Day (the "DETERMINATION DATE") immediately preceding the day on which such Triggering Distribution is declared by the Company multiplied by the number of shares of Common Stock outstanding on the Determination Date (excluding shares held in the treasury of the Company), the Conversion Price shall be reduced so that the same shall equal the price determined by multiplying such Conversion Price in effect immediately prior to the Determination Date by a fraction of which the numerator shall be the current market price per share of the Common Stock (as determined in accordance with subsection (g) of this Section 4.06) on the Determination Date less the sum of the aggregate amount of cash and the aggregate fair market value (determined as aforesaid in this Section 4.06(d)) of any such other consideration so distributed, paid or payable within such 12 months (including, without limitation, the Triggering Distribution) applicable to one share of Common Stock (determined on the basis of the number of shares of Common Stock outstanding on the Determination Date) and the denominator shall be such current market price per share of the Common Stock (as determined in accordance with subsection (g) of this Section 4.06) on the

Determination Date, such reduction to become effective immediately prior to the opening of business on the day following the date on which the Triggering Distribution is paid.

(f) In case any tender offer made by the Company or any of its Subsidiaries for Common Stock shall expire and such tender offer (as amended upon the expiration thereof) shall involve the payment of aggregate consideration in an amount (determined as the sum of the aggregate amount of cash consideration and the aggregate fair market value (as determined by the Board of Directors, whose determination shall be conclusive evidence thereof and which shall be evidenced by an Officers' Certificate delivered to the Trustee thereof) of any other consideration) that, together with the aggregate amount of (A) any cash and the fair market value (as determined by the Board of Directors, whose determination shall be conclusive evidence thereof and which shall be evidenced by an Officers' Certificate delivered to the Trustee) of any other consideration payable in respect of any other tender offers by the Company or any Subsidiary of the Company for Common Stock consummated within the 12 months preceding the date of the Expiration Date (as defined below) and in respect of which no Conversion Price adjustment pursuant to this Section 4.06 has been made and (B) all cash distributions to all or substantially all holders of its Common Stock made within the 12 months preceding the Expiration Date and in respect of which no Conversion Price adjustment pursuant to this Section 4.06 has been made, exceeds an amount equal to 10.0% of the product of the current market price per share of Common Stock (as determined in accordance with subsection (g) of this Section 4.06) as of the last date (the "EXPIRATION DATE") tenders could have been made pursuant to such tender offer (as it may be amended) (the last time at which such tenders could have been made on the Expiration Date is hereinafter sometimes called the "EXPIRATION TIME") multiplied by the number of shares of Common Stock outstanding (including tendered shares but excluding any shares held in the treasury of the Company) at the Expiration Time, then, immediately prior to the opening of business on the day after the Expiration Date, the Conversion Price shall be reduced so that the same shall equal the price determined by multiplying the Conversion Price in effect immediately prior to close of business on the Expiration Date by a fraction of which the numerator shall be the product of the number of shares of Common Stock outstanding (including tendered shares but excluding any shares held in the treasury of the Company) at the Expiration Time multiplied by the current market price per share of the Common Stock (as determined in accordance with subsection (g) of this Section 4.06) on the Trading Day next succeeding the Expiration Date and the denominator shall be the sum of (x) the aggregate consideration (determined as aforesaid) payable to stockholders based on the acceptance (up to any maximum specified in the terms of the tender offer) of all shares validly tendered and not withdrawn as of the Expiration Time (the shares deemed so accepted, up to any such maximum, being referred to as the "PURCHASED SHARES") and (y) the product of the number of shares of Common Stock outstanding (less any Purchased Shares and excluding any shares held in the treasury of the Company) at the Expiration Time and the current market price per share of Common Stock (as determined in accordance with subsection (g) of this Section 4.06) on the Trading Day next succeeding the Expiration Date, such reduction to become effective immediately prior to the opening of business on the day following the Expiration Date. In the event that the Company is obligated to purchase shares pursuant to any such tender offer, but the Company is permanently prevented by applicable law from effecting any or all such purchases or any or all such purchases are rescinded, the Conversion Price shall again be adjusted to be the Conversion Price which would have been in effect based upon the number of shares actually purchased. If the application of this Section 4.06(f) to any tender offer would result in an increase in the Conversion Price, no adjustment shall be made for such tender offer under this Section 4.06(f).

For purposes of this Section 4.06(e), the term "tender offer" shall mean and include both tender offers and exchange offers, all references to "purchases" of shares in tender offers (and all similar references) shall mean and include both the purchase of shares in tender offers and the acquisition of

shares pursuant to exchange offers, and all references to "tendered shares" (and all similar references) shall mean and include shares tendered in both tender offers and exchange offers.

(g) For the purpose of any computation under subsections (b), (c), (d) and (e) of this Section 4.06, the current market price per share of Common Stock on any date shall be deemed to be the average of the daily Closing Sale Prices for the 30 consecutive Trading Days commencing 45 Trading Days before (i) the Determination Date or the Expiration Date, as the case may be, with respect to distributions or tender offers under subsections (d) and (e) of this Section 4.06 or (ii) the record date with respect to distributions, issuances or other events requiring such computation under subsection (c), (d) or (e) of this Section 4.06. If no such prices are available, the current market price per share shall be the fair value of share of Common Stock as determined by the Board of Directors (which shall be evidenced by an Officers' Certificate delivered to the Trustee).

(h) If any distribution in respect of which an adjustment to the Conversion Price is required to be made as of the record date or Determination Date or Expiration Date therefor is not thereafter made or paid by the Company for any reason, the Conversion Price shall be readjusted to the Conversion Price which would then be in effect if such record date had not been fixed or such effective date or Determination Date or Expiration Date had not occurred.

SECTION 4.07. NO ADJUSTMENT.

No adjustment in the Conversion Price shall be required until cumulative adjustments amount to 1% or more of the Conversion Price as last adjusted; PROVIDED, HOWEVER, that any adjustments which by reason of this Section 4.07 are not required to be made shall be carried forward and taken into account in any subsequent adjustment. All calculations under this Article 4 shall be made to the nearest cent or to the nearest one-hundredth of a share, as the case may be. No adjustment need be made for rights to purchase Common Stock pursuant to a Company plan for reinvestment of dividends or interest. No adjustment need be made for a change in the par value or no par value of the Common Stock.

SECTION 4.08. OTHER ADJUSTMENTS.

(a) In the event that, as a result of an adjustment made pursuant to Section 4.06 hereof, the Holder of any Note thereafter surrendered for conversion shall become entitled to receive any shares of Capital Stock of the Company other than shares of its Common Stock, thereafter the Conversion Price of such other shares so receivable upon conversion of any Note shall be subject to adjustment from time to time in a manner and on terms as nearly equivalent as practicable to the provisions with respect to Common Stock contained in this Article 4.

(b) In the event that shares of Common Stock are not delivered after the expiration of any of the rights or warrants referred to in Section 4.06(b) and Section 4.06(c) hereof, the Conversion Price shall be readjusted to the Conversion Price which would otherwise be in effect had the adjustment made upon the issuance of such rights or warrants been made on the basis of delivery of only the number of shares of Common Stock actually delivered.

SECTION 4.09. ADJUSTMENTS FOR TAX PURPOSES.

The Company may make such reductions in the Conversion Price, in addition to those required by Section 4.06 hereof, as it determines in its discretion to be advisable in order that any stock dividend, subdivision of shares, distribution or rights to purchase stock or securities or distribution of securities

convertible into or exchangeable for stock made by the Company to its stockholders will not be taxable to the recipients thereof.

SECTION 4.10. NOTICE OF ADJUSTMENT.

Whenever the Conversion Price is adjusted, the Company shall promptly mail to Holders at the addresses appearing on the Registrar's books a notice of the adjustment and file with the Trustee an Officers' Certificate briefly stating the facts requiring the adjustment and the manner of computing it. The certificate shall be conclusive evidence of the correctness of such adjustment. Unless and until a Trust Officer of the Trustee shall receive written notice of an adjustment of the Conversion Price, the Trustee may assume without inquiry that the Conversion Price has not been adjusted and that the last Conversion Price of which it has knowledge remains in effect.

SECTION 4.11. NOTICE OF CERTAIN TRANSACTIONS.

In the event that:

(1) the Company takes any action which would require an adjustment in the Conversion Price;

(2) the Company takes any action that would require a supplemental indenture pursuant to Section 4.12; or

(3) there is a dissolution or liquidation of the Company;

the Company shall mail to Holders at the addresses appearing on the Registrar's books and the Trustee a notice stating the proposed record or effective date, as the case may be, to permit a Holder of a Note to convert such Note into shares of Common Stock prior to the record date for or the effective date of the transaction in order to receive the rights, warrants, securities or assets which a holder of shares of Common Stock on that date may receive. The Company shall mail the notice at least 15 days before such date; however, failure to mail such notice or any defect therein shall not affect the validity of any transaction referred to in clause (1), (2) or (3) of this Section 4.11.

SECTION 4.12. EFFECT OF RECLASSIFICATIONS, CONSOLIDATIONS, MERGERS OR SALES ON CONVERSION PRIVILEGE.

If any of the following shall occur, namely: (i) any reclassification or change of outstanding shares of Common Stock issuable upon conversion of Notes (other than a change in par value, or from par value to no par value, or from no par value to par value, or as a result of a subdivision or combination or as a result of a reincorporation of the Company in another jurisdiction), (ii) any consolidation or merger to which the Company is a party other than a merger in which the Company is the continuing corporation and which does not result in any reclassification of, or change (other than a change in name, or par value, or from par value to no par value, or from no par value to par value or as a result of a subdivision or combination) in, outstanding shares of Common Stock or (iii) any sale or conveyance of all or substantially all of the property or business of the Company as an entirety, then the Company, or such successor or purchasing corporation, as the case may be, shall, as a condition precedent to such reclassification, change, consolidation, merger, sale or conveyance, execute and deliver to the Trustee a supplemental indenture in form reasonably satisfactory to the Trustee providing that the Holder of each Note then outstanding shall have the right to convert such Note into the kind and amount of shares of stock and other securities and property (including cash) receivable upon such reclassification, change, consolidation, merger, sale or conveyance by a Holder of the number of shares of Common Stock

deliverable upon conversion of such Note immediately prior to such reclassification, change, consolidation, merger, sale or conveyance. In the event that the shares of Common Stock are exchanged or substituted for other securities in connection with any such reclassification, change, consolidation, merger, sale or conveyance, such supplemental indenture shall provide for adjustments of the Conversion Price which shall be as nearly equivalent as may be practicable to the adjustments of the Conversion Price provided for in this Article 4. If, in the case of any such consolidation, merger, sale or conveyance, the stock or other securities and property (including cash) receivable thereupon by a Holder of Common Stock includes shares of stock or other securities and property of a corporation other than the successor or purchasing corporation, as the case may be, in such consolidation, merger, sale or conveyance, then such supplemental indenture shall also be executed by such other corporation and shall contain such additional provisions to protect the interests of the Holders of the Notes as the Board of Directors of the Company shall reasonably consider necessary by reason of the foregoing. The provision of this Section 4.12 shall similarly apply to successive consolidations, mergers, sales or conveyances.

In the event the Company shall execute a supplemental indenture pursuant to this Section 4.12, the Company shall promptly file with the Trustee an Officers' Certificate briefly stating the reasons therefor, the kind or amount of shares of stock or securities or property (including cash) receivable by Holders of the Notes upon the conversion of their Notes after any such

reclassification, change, consolidation, merger, sale or conveyance and any adjustment to be made with respect thereto.

SECTION 4.13. TRUSTEE'S DISCLAIMER.

The Trustee has no duty to determine when an adjustment under this Article 4 should be made, how it should be made or what such adjustment should be, but may accept as conclusive evidence of the correctness of any such adjustment, and shall be protected in relying upon, the Officers' Certificate with respect thereto which the Company is obligated to file with the Trustee pursuant to Section 4.10 hereof. The Trustee makes no representation as to the validity or value of any securities or assets issued upon conversion of Notes, and the Trustee shall not be responsible for the Company's failure to comply with any provisions of this Article 4.

The Trustee shall not be under any responsibility to determine the correctness of any provisions contained in any supplemental indenture executed pursuant to Section 4.12, but may accept as conclusive evidence of the correctness thereof, and shall be protected in relying upon, the Officers' Certificate with respect thereto which the Company is obligated to file with the Trustee pursuant to Section 4.12 hereof.

SECTION 4.14. VOLUNTARY REDUCTION.

The Company from time to time may reduce the Conversion Price by any amount for any period of time if the period is at least 20 days and if the reduction is irrevocable during the period if the Board of Directors determines that such reduction would be in the best interest of the Company and the Company provides 15 days prior notice of any reduction in the Conversion Price; provided, however, that in no event may the Company reduce the Conversion Price to be less than the par value of a share of Common Stock.

ARTICLE 5.
SUBORDINATION

SECTION 5.01. AGREEMENT TO SUBORDINATE.

The Company agrees, and each Holder by accepting a Note agrees, that the Indebtedness evidenced by the Notes (including the principal of, premium, if any, and interest (including Additional Interest, if any) on all the Notes and the redemption price and Make-Whole Payment, if any, with respect to any Notes being called for redemption and the Change in Control Payment with respect to all Notes subject to purchase pursuant to Section 6.09 hereof) is subordinated in right of payment, to the extent and in the manner provided in this Article 5, to the prior payment in full of all Senior Indebtedness (whether outstanding on the date hereof or hereafter created, incurred, assumed or guaranteed), and that the subordination is for the benefit of the holders of Senior Indebtedness. No provision of this Section 5 shall prevent the occurrence of any Default or Event of Default.

SECTION 5.02. LIQUIDATION; DISSOLUTION; BANKRUPTCY.

Upon any distribution to creditors of the Company in a liquidation or dissolution of the Company or in a bankruptcy, reorganization, insolvency, receivership or similar proceeding relating to the Company or its property, in an assignment for the benefit of creditors or any marshaling of the Company's assets and liabilities:

(i) holders of Senior Indebtedness shall be entitled to receive payment in full of all Obligations due in respect of such Senior Indebtedness (including interest after the commencement of any such proceeding at the rate specified in the applicable Senior Indebtedness) before Holders of the Notes shall be entitled to receive any payment with respect to the Notes (except that Holders may receive Permitted Junior Securities); and

(ii) until all Obligations with respect to Senior Indebtedness (as provided in clause (i) above) are paid in full, any distribution to which Holders would be entitled but for this Article 5 shall be made to holders of Senior Indebtedness (except that Holders of Notes may receive Permitted Junior Securities), as their interests may appear.

SECTION 5.03. DEFAULT ON DESIGNATED SENIOR INDEBTEDNESS.

(a) The Company may not make any payment or distribution to the Trustee or any Holder in respect of Obligations with respect to the Notes and may not acquire from the Trustee or any Holder any Notes for cash or property (other than Permitted Junior Securities) until all principal and other Obligations with respect to the Senior Indebtedness have been paid in full if:

(i) a default in the payment of any principal or other Obligations with respect to Designated Senior Indebtedness occurs and is continuing beyond any applicable grace period in the agreement, indenture or other document governing such Designated Senior Indebtedness; or

(ii) a default, other than a payment default, on Designated Senior Indebtedness occurs and is continuing that then permits holders of the Designated Senior Indebtedness to accelerate its maturity and the Trustee receives a notice of the default (a "PAYMENT BLOCKAGE NOTICE") from a Person who may give it pursuant to Section 5.12 hereof. If the Trustee receives any such Payment Blockage Notice, no subsequent Payment Blockage Notice shall be effective for purposes of this Section unless and until (A) at least 360 days shall have elapsed since

the issuance of the immediately prior Payment Blockage Notice and (B) all scheduled payments of principal, premium, if any, and interest on the Notes that have come due have been paid in full in cash. No nonpayment default that existed or was continuing on the date of delivery of any Payment Blockage Notice to the Trustee shall be, or be made, the basis for a subsequent Payment Blockage Notice unless such default shall have been waived for a period of not less than 180 days.

(b) The Company may and shall resume payments on and distributions in respect of the Notes and may acquire them upon the earlier of:

(i) the date upon which the Trustee receives notice from the Company that the default is cured or waived or ceases to exist, or

(ii) in the case of a default referred to in clause (ii) of Section 5.04(a) hereof, 179 days pass after the Payment Blockage Notice is received if the maturity of such Designated Senior Indebtedness has not been accelerated,

if this Article 5 otherwise permits the payment, distribution or acquisition at the time of such payment or acquisition.

SECTION 5.04. ACCELERATION OF NOTES.

If payment of the Notes is accelerated because of an Event of Default, the Company shall promptly notify holders of Senior Indebtedness of the acceleration.

SECTION 5.05. WHEN DISTRIBUTION MUST BE PAID OVER.

In the event that the Trustee or any Holder receives any payment of any Obligations or distribution of assets of the Company of any kind or character (other than Permitted Junior Securities pursuant to Section 5 hereof),whether in cash, property or securities (including, without limitation, by way of setoff or otherwise) with respect to the Notes at a time when the Trustee or such Holder, as applicable, has actual knowledge that such payment is prohibited by Section 5.03 hereof, such payment shall be held by the Trustee or such Holder, in trust for the benefit of, and shall be paid forthwith over and delivered, upon written request, to, the holders of Senior Indebtedness as their interests may appear or their Representative under the indenture or other agreement (if any) pursuant to which Senior Indebtedness may have been issued, as their respective interests may appear, for application to the payment of all Obligations with respect to Senior Indebtedness remaining unpaid to the extent necessary to pay such Obligations in full in accordance with their terms, after giving effect to any concurrent payment or distribution to or for the holders of Senior Indebtedness.

With respect to the holders of Senior Indebtedness, the Trustee undertakes to perform only such obligations on the part of the Trustee as are specifically set forth in this Article 5, and no implied covenants or obligations with respect to the holders of Senior Indebtedness shall be read into this Indenture against the Trustee. The Trustee shall not be deemed to owe any fiduciary duty to the holders of Senior Indebtedness, and shall not be liable to any such holders if the Trustee shall pay over or distribute to or on behalf of Holders or the Company or any other Person money or assets to which any holders of Senior Indebtedness shall be entitled by virtue of this Article 5, except if such payment is made as a result of the willful misconduct or gross negligence of the Trustee.

SECTION 5.06. NOTICE BY COMPANY.

The Company shall promptly notify the Trustee and the Paying Agent of any facts known to the Company that would cause a payment of any Obligations with respect to the Notes to violate this Article 5, but failure to give such notice shall not affect the subordination of the Notes to the Senior Indebtedness as provided in this Article 5.

SECTION 5.07. SUBROGATION.

After all Senior Indebtedness is paid in full in cash or other payment satisfactory to the holders of the Senior Indebtedness and until the Notes are paid in full, Holders of Notes shall be subrogated (equally and ratably with all other Indebtedness PARI PASSU with the Notes and entitled to similar rights of subrogation) to the rights of holders of Senior Indebtedness to receive payments or distributions applicable to Senior Indebtedness to the extent that payments or distributions otherwise payable to the Holders of Notes have been applied to the payment of Senior Indebtedness. A distribution made under this Article 5 to holders of Senior Indebtedness that otherwise would have been made to Holders of Notes (whether by the Company, any Holder, the Trustee or otherwise) is not, as between the Company and Holders, a payment by the Company on the Notes.

SECTION 5.08. RELATIVE RIGHTS.

This Article 5 defines the relative rights of Holders of Notes and holders of Senior Indebtedness. Nothing in this Indenture shall:

(i) impair, as between the Company and Holders of Notes, the obligation of the Company, which is absolute and unconditional, to pay principal of, premium, if any, and interest (including Additional Interest) on the Notes in accordance with their terms;

(ii) affect the relative rights of Holders of Notes and creditors of the Company other than their rights in relation to holders of Senior Indebtedness; or

(iii) prevent the Trustee or any Holder of Notes from exercising its available remedies upon a Default or Event of Default, subject to the rights of holders and owners of Senior Indebtedness to receive distributions and payments otherwise payable to Holders of Notes.

If the Company fails because of this Article 5 to pay principal of, premium, if any, or interest (including Additional Interest) on a Note on the due date, the failure is still a Default or Event of Default.

SECTION 5.09. SUBORDINATION MAY NOT BE IMPAIRED BY COMPANY.

No right of any holder of Senior Indebtedness to enforce the subordination of the Indebtedness evidenced by the Notes shall be impaired by any act or failure to act by the Company or any Holder or by the failure of the Company or any Holder to comply with this Indenture.

SECTION 5.10. DISTRIBUTION OR NOTICE TO REPRESENTATIVE.

Whenever a distribution is to be made or a notice given to holders of Senior Indebtedness, the distribution may be made and the notice given to their Representative.

Upon any payment or distribution of assets of the Company referred to in this Article 5, the Trustee and the Holders of Notes shall be entitled to rely upon any order or decree made by any court of competent jurisdiction or upon any certificate of such Representative or of the liquidating trustee or agent or other Person making any distribution to the Trustee or to the Holders of Notes for the purpose of ascertaining the Persons entitled to participate in such distribution, the holders of the Senior Indebtedness and other Indebtedness of the Company, the amount thereof or payable thereon, the amount or amounts paid or distributed thereon and all other facts pertinent thereto or to this Article 5.

SECTION 5.11. RIGHTS OF TRUSTEE AND PAYING AGENT.

Notwithstanding the provisions of this Article 5 or any other provision of this Indenture, the Trustee shall not be charged with knowledge of the existence of any facts that would prohibit the making of any payment or distribution by the Trustee, and the Trustee and the Paying Agent may continue to make payments on the Notes, unless the Trustee shall have received at its Corporate Trust Office at least five Business Days prior to the date of such payment written notice of facts that would cause the payment of any Obligations with respect to the Notes to violate this Article 5. Only the Company or a Representative may give the notice. Nothing in this Article 5 shall impair the claims of, or payments to, the Trustee under or pursuant to Section 9.07 hereof.

The Trustee in its individual or any other capacity may hold Senior Indebtedness with the same rights it would have if it were not Trustee. Any Agent may do the same with like rights.

SECTION 5.12. AUTHORIZATION TO EFFECT SUBORDINATION.

Each Holder of Notes, by the Holder's acceptance thereof, authorizes and directs the Trustee on such Holder's behalf to take such action as may be necessary or appropriate to effectuate the subordination as provided in this Article 5, and appoints the Trustee to act as such Holder's attorney-in-fact for any and all such purposes. If the Trustee does not file a proper proof of claim or proof of debt in the form required in any proceeding referred to in Section 8.09 hereof at least 30 days before the expiration of the time to file such claim, the holders of any Designated Senior Indebtedness are hereby authorized to file an appropriate claim for and on behalf of the Holders of the Notes.

SECTION 5.13. AMENDMENTS.

The provisions of this Article 5 shall not be amended or modified without the written consent of the holders of all Senior Indebtedness.

SECTION 5.14. AGREEMENT TO SUBORDINATE UNAFFECTED.

The provisions of this Article 5 shall remain in full force and effect irrespective of (a) any amendment, modification, or supplement of, or any waiver or consent to, any of the terms of the Senior Indebtedness or the agreement or instrument governing the Senior Indebtedness, (b) the release or non-perfection of any collateral securing the Senior Indebtedness or (c) the manner of sale or other disposition of the collateral securing the Senior Indebtedness or the application of the proceeds upon such sale.

SECTION 5.15. CERTAIN CONVERSIONS DEEMED PAYMENT.

For the purposes of this Article 5 only, (1) the issuance and delivery of Permitted Junior Securities upon conversion of Notes in accordance with Article 4 shall not be deemed to constitute a

payment or distribution on account of the principal of, or premium, if any, or interest (including Additional Interest) on the Notes or on account of the purchase or other acquisition of Notes, and (2) the payment, issuance or delivery of cash (except in satisfaction of fractional shares pursuant to Section 4.03), property or securities (other than Permitted Junior Securities) upon conversion of a Note shall be deemed to constitute payment on account of the principal of such Note. Nothing contained in this Article 5 or elsewhere in this Indenture or in the Notes is intended to or shall impair, as among the Company, its creditors other than holders of Senior Indebtedness and the Holders, the right, which is absolute and unconditional, of the Holder of any Note to convert such Note in accordance with Article 4.

ARTICLE 6.
COVENANTS

SECTION 6.01. PAYMENT OF NOTES.

The Company shall pay or cause to be paid the principal of, premium, if any, and interest on the Notes on the dates and in the manner provided in the Notes. Principal, premium, if any, and interest shall be considered paid on the date due if the Paying Agent, if other than the Company or a Subsidiary thereof, holds as of 10:00 a.m. Eastern Time on the due date money deposited by the Company in immediately available funds and designated for and sufficient to pay all principal, premium, if any, and interest then due. The Company shall pay all Additional Interest, if any, in the same manner on the dates and in the amounts set forth in the Registration Rights Agreement.

The Company shall pay interest (including post-petition interest in any proceeding under any Bankruptcy Law) on overdue principal at the rate borne by the Notes to the extent lawful; it shall pay interest (including post-petition interest in any proceeding under any Bankruptcy Law) on overdue installments of interest and Additional Interest (without regard to any applicable grace period) at the same rate to the extent lawful.

SECTION 6.02. MAINTENANCE OF OFFICE OR AGENCY.

The Company shall maintain in the Borough of Manhattan, the City of New York, a Paying Agent, Conversion Agent, Registrar and an office or agency (which may be an office of the Trustee or an affiliate of the Trustee, Registrar or co-registrar) where Notes may be surrendered for registration of transfer or for exchange and where notices and demands to or upon the Company in respect of the Notes and this Indenture may be served. The Company shall give prompt written

notice to the Trustee of the location, and any change in the location, of such office or agency. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee.

The Company may also from time to time designate one or more other offices or agencies where the Notes may be presented or surrendered for any or all such purposes and may from time to time rescind such designations; PROVIDED, HOWEVER, that no such designation or rescission shall in any manner relieve the Company of its obligation to maintain an office or agency in the Borough of Manhattan, the City of New York for such purposes. The Company shall give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

The Company hereby designates the Corporate Trust Office of the Trustee as one such office or agency of the Company in accordance with Section 2.03.

SECTION 6.03. REPORTS.

Whether or not required by the rules and regulations of the SEC, so long as any Notes are outstanding, the Company shall furnish to the Holders of Notes (i) all quarterly and annual financial information that would be required to be contained in a filing with the SEC on Forms 10-Q and 10-K if the Company were required to file such forms, including a "Management's Discussion and Analysis of Financial Condition and Results of Operations" and, with respect to the annual information only, a report thereon by the Company's certified independent accountants and (ii) all current reports that would be required to be filed with the SEC on Form 8-K if the Company were required to file such reports, in each case, within the time periods specified in the SEC's rules and regulations; provided, that if the Company files the reports required by this Section 6.03 with the SEC and such reports are publicly available, it shall be deemed to have satisfied its obligation to furnish such reports to the Holders pursuant to this Section 6.03. The Company shall at all times comply with TIA ss. 314(a).

SECTION 6.04. RULE 144A INFORMATION REQUIREMENT.

Within the period prior to the expiration of the holding period applicable to sales thereof under Rule 144(k) under the Securities Act (or any successor provision), the Company covenants and agrees that it shall, during any period in which it is not subject to Section 13 or 15(d) under the Exchange Act, make available to any Holder or beneficial holder of Notes or any Common Stock issued upon conversion thereof which continue to be Restricted Notes in connection with any sale thereof and any prospective purchaser of Notes or such Common Stock designated by such Holder or beneficial holder, the information required pursuant to Rule 144A(d)(4) under the Securities Act upon the request of any Holder or beneficial holder of the Notes or such Common Stock and it will take such further action as any Holder or beneficial holder of such Notes or such Common Stock may reasonably request, all to the extent required from time to time to enable such Holder or beneficial holder to sell its Notes or Common Stock without registration under the Securities Act within the limitation of the exemption provided by Rule 144A, as such Rule may be amended from time to time. Upon the request of any Holder or any beneficial holder of the Notes or such Common Stock, the Company will deliver to such Holder a written statement as to whether it has complied with such requirements.

SECTION 6.05. COMPLIANCE CERTIFICATE.

(a) The Company shall deliver to the Trustee, within 90 days after the end of each fiscal year, an Officers' Certificate stating that a review of the activities of the Company and its Subsidiaries during the preceding fiscal year has been made under the supervision of the signing Officers with a view to determining whether the Company has kept, observed, performed and fulfilled its obligations under this Indenture, and further stating, as to each such Officer signing such certificate, that to the best of his or her knowledge the Company has kept, observed, performed and fulfilled each and every covenant contained in this Indenture and is not in default in the performance or observance of any of the terms, provisions and conditions of this Indenture (or, if a Default or Event of Default shall have occurred, describing all such Defaults or Events of Default of which he or she may have knowledge and what action the Company is taking or proposes to take with respect thereto) and that to the best of his or her knowledge no event has occurred and remains in existence by reason of which payments on account of the principal of or interest, if any, on the Notes is prohibited or if such event has occurred, a description of the event and what action the Company is taking or proposes to take with respect thereto.

(b) The Company shall, so long as any of the Notes are outstanding, deliver to the Trustee, forthwith upon any Officer becoming aware of any Default

or Event of Default, an Officers' Certificate

specifying such Default or Event of Default and what action the Company is taking or proposes to take with respect thereto.

SECTION 6.06. TAXES.

The Company shall pay, and shall cause each of its Subsidiaries to pay, prior to delinquency, all material taxes, assessments, and governmental levies except such as are contested in good faith and by appropriate proceedings or where the failure to effect such payment is not adverse in any material respect to the Holders of the Notes.

SECTION 6.07. STAY, EXTENSION AND USURY LAWS.

The Company covenants (to the extent that it may lawfully do so) that it shall not at any time insist upon, plead, or in any manner whatsoever claim or take the benefit or advantage of, any stay, extension or usury law wherever enacted, now or at any time hereafter in force, that may affect the covenants or the performance of this Indenture; and the Company (to the extent that it may lawfully do so) hereby expressly waives all benefit or advantage of any such law, and covenants that it shall not, by resort to any such law, hinder, delay or impede the execution of any power herein granted to the Trustee, but shall suffer and permit the execution of every such power as though no such law has been enacted.

SECTION 6.08. CORPORATE EXISTENCE.

Subject to Article 7 hereof, the Company shall do or cause to be done all things necessary to preserve and keep in full force and effect (i) its corporate existence, and the corporate, partnership or other existence of each of its Subsidiaries, in accordance with the respective organizational documents (as the same may be amended from time to time) of the Company or any such Subsidiary and (ii) the rights (charter and statutory), licenses and franchises of the Company and its Subsidiaries; PROVIDED, HOWEVER, that the Company shall not be required to preserve any such right, license or franchise, or the corporate, partnership or other existence of any of its Subsidiaries, if the Board of Directors shall determine that the preservation thereof is no longer desirable in the conduct of the business of the Company and its Subsidiaries, taken as a whole, and that the loss thereof is not adverse in any material respect to the Holders of the Notes.

SECTION 6.09. OFFER TO REPURCHASE UPON CHANGE OF CONTROL.

(a) Upon the occurrence of a Change of Control, the Company shall make an offer (a "CHANGE OF CONTROL OFFER") to each Holder to repurchase all or any part (equal to $1,000 or an integral multiple thereof) of each Holder's Notes at a purchase price equal to 100% of the aggregate principal amount thereof plus accrued and unpaid interest and Additional Interest thereon, if any, to, but excluding, the date of purchase (the "CHANGE OF CONTROL PAYMENT"). Within 10 business days following any Change of Control, the Company shall mail a notice to each Holder stating: (1) that the Change of Control Offer is being made pursuant to this Section 6.09 and that all Notes tendered will be accepted for payment; (2) the purchase price and the purchase date, which shall be 30 business days after the occurrence of a Change of Control (the "CHANGE OF CONTROL PAYMENT DATE"); (3) that any Note not tendered will continue to accrue interest; (4) the name and address of each Paying Agent and Conversion Agent, (5) the Conversion Price and any adjustments thereto, (6) that Notes as to which a Change in Control Payment Notice has been given may be converted into Common Stock pursuant to Article 4 of this Indenture only to the extent that the Change in Control Payment Notice has been withdrawn in accordance with the terms of this Indenture, (7) that, unless the Company defaults in the payment of the

Change of Control Payment, all Notes accepted for payment pursuant to the Change of Control Offer shall cease to accrue interest after the Change of Control Payment Date; (8) that Holders electing to have any Notes purchased pursuant to a Change of Control Offer will be required to surrender the Notes, with the form entitled "Option of Holder to Elect Purchase" on the reverse of the Notes completed, to the Paying Agent at the address specified in the notice prior to the close of business on the Business Day preceding the Change of Control Payment Date; (9) that Holders will be entitled to withdraw their election if the Paying Agent receives, not later than the close of business on the Business Day preceding the Change of Control Payment Date, a telegram, telex, facsimile transmission, letter or any other written form setting forth the name of the

Holder, the principal amount of Notes delivered for purchase, and a statement that such Holder is withdrawing his election to have the Notes purchased; and (10) that Holders whose Notes are being purchased only in part will be issued new Notes equal in principal amount to the unpurchased portion of the Notes surrendered, which unpurchased portion must be equal to $1,000 in principal amount or an integral multiple thereof. The Company shall comply with the requirements of Rule 13e-4 and Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent such laws and regulations are applicable in connection with the repurchase of Notes in connection with a Change of Control.

A "Change in Control" shall be deemed to have occurred if any of the following occurs after the date hereof:

(i) any "person" or "group" (as such terms are defined below) is or becomes the "beneficial owner" (as defined below), directly or indirectly (other than as a direct result of repurchases of stock by the Company), of shares of Voting Stock of the Company representing 50% or more of the total voting power of all outstanding classes of Voting Stock of the Company or such person or group (other than the "management group") has the power, directly or indirectly, to elect a majority of the members of the Board of Directors of the Company; provided, that Voting Stock acquired in an exempt transaction shall not constitute a Change in Control, or

(ii) the Company consolidates with, or merges with or into, another Person or the Company sells, assigns, conveys, transfers, leases or otherwise disposes of all or substantially all of the assets of the Company, or any Person consolidates with, or merges with or into, the Company, in any such event other than (a) pursuant to a transaction in which the Persons that "beneficially owned" (as defined below), directly or indirectly, shares of Voting Stock of the Company immediately prior to such transaction "beneficially own" (as defined below), directly or indirectly, shares of Voting Stock of the Company representing at least a majority of the total voting power of all outstanding classes of Voting Stock of the surviving or transferee Person or (b) an exempt transaction; or

(iii) there shall occur the liquidation or dissolution of the Company.

For the purpose of the definition of "Change in Control", (i) "person" and "group" have the meanings given such terms under Section 13(d) and 14(d) of the Exchange Act or any successor provision to either of the foregoing, and the term "group" includes any group acting for the purpose of acquiring, holding or disposing of securities within the meaning of Rule 13d-5(b)(1) under the Exchange Act (or any successor provision thereto), (ii) a "beneficial owner" shall be determined in accordance with Rule 13d-3 under the Exchange Act, as in effect on the date of this Indenture, except that the number of shares of Voting Stock of the Company shall be deemed to include, in addition to all outstanding shares of Voting Stock of the Company and Unissued Shares deemed to be held by the "person" or "group" (as

such terms are defined above) or other Person with respect to which the Change in Control determination is being made, all Unissued Shares deemed to be held by all other Persons, and (iii) the terms "beneficially owned" and "beneficially own" shall have meanings correlative to that of "beneficial owner". The term "Unissued Shares" means shares of Voting Stock not outstanding that are subject to options, warrants, rights to purchase or conversion privileges exercisable within 60 days of the date of determination of a Change in Control. The term "exempt transaction" means any purchase from the Company of equity interests in the Company by the management group; provided that the management group does not collectively beneficially own more than 65% of the total Voting Stock of all outstanding classes of Voting Stock of the Company following such purchase. The term "management group" means any of Thomas Russell, The AER 1997 Trust, Robert Louis-Dreyfus, Gallium Enterprises, Inc. and Reuben Richards.

Notwithstanding anything to the contrary set forth in this Section 6.09, a Change in Control will not be deemed to have occurred if either:

(i) the Closing Sale Price of the Common Stock for any five Trading Days during the period of the ten Trading Days immediately preceding the Change in Control is at least equal to 105% of the Conversion Price in effect on such day; or

(ii) in the case of a merger or consolidation, all of the consideration (excluding cash payments for fractional shares in the merger or consolidation constituting the Change in Control) consists of common stock traded on a United States national securities exchange or quoted on The Nasdaq National Market (or which will be so traded or

quoted when issued or exchanged in connection with such Change In Control) and as a result of such transaction or transactions the Notes become convertible solely into such common stock.

(b) A Holder may exercise its rights pursuant to this Section 6.09 upon delivery of a written notice (which shall be in substantially the form entitled "Option of Holder to Elect Purchase" on the reverse of the Notes and which may be delivered by letter, overnight courier, hand delivery, facsimile transmission or in any other written form and, in the case of Global Notes, may be delivered electronically or by other means in accordance with the Depositary's customary procedures) of the exercise of such rights (a "CHANGE IN CONTROL PAYMENT NOTICE") to any Paying Agent at any time prior to the close of business on the Business Day next preceding the Change in Control Purchase Date.

Notwithstanding anything herein to the contrary, any Holder delivering to a Paying Agent the Change in Control Payment Notice contemplated by this Section 6.09(b) shall have the right to withdraw such Change in Control Payment Notice in whole or in a portion thereof that is a principal amount of $1,000 or in an integral multiple thereof at any time prior to the close of business on the Business Day next preceding the Change in Control Payment Date by delivery of a written notice of withdrawal to the Paying Agent in accordance with Section 6.09(a) hereof.

Upon receipt by any Paying Agent of the Change in Control Payment Notice specified in this Section 6.09(b), the Holder of the Security in respect of which such Change in Control Payment Notice was given shall (unless such Change in Control Payment Notice is withdrawn as specified below) thereafter be entitled to receive the Change in Control Payment Price with respect to such Note. Such Change in Control Payment Price shall be paid to such Holder promptly following the later of (i) the Change in Control Payment Date with respect to such Note (provided the conditions in this Section 6.09(b) have been satisfied) and (ii) the time of delivery of such Note to a Paying Agent by the Holder thereof in the manner required by this Section 6.09(b). Notes in respect of which a Change in Control

Payment Notice has been given by the Holder thereof may not be converted into shares of Common Stock on or after the date of the delivery of such Change in Control Payment Notice unless such Change in Control Payment Notice has first been validly withdrawn.

(c) On the Change of Control Payment Date, the Company shall, to the extent lawful, (1) accept for payment all Notes or portions thereof properly tendered pursuant to the Change of Control Offer, (2) deposit with the Paying Agent an amount equal to the Change of Control Payment in respect of all Notes or portions thereof so tendered and (3) deliver or cause to be delivered to the Trustee the Notes so accepted together with an Officers' Certificate stating the aggregate principal amount of Notes or portions thereof being purchased by the Company. The Paying Agent shall promptly mail to each Holder of Notes so tendered payment in an amount equal to the purchase price for the Notes, and the Trustee shall promptly authenticate and mail (or cause to be transferred by book entry) to each Holder a new Note equal in principal amount to any unpurchased portion of the Notes surrendered by such Holder, if any; PROVIDED, that each such new Note shall be in a principal amount of $1,000 or an integral multiple thereof. The Company shall publicly announce the results of the Change of Control Offer on or as soon as practicable after the Change of Control Payment Date.

If a Paying Agent holds, in accordance with the terms hereof, money sufficient to pay the Change in Control Payment Price of any Note for which a Change in Control Payment Notice has been tendered and not withdrawn in accordance with this Indenture then, on the Change in Control Payment Date, such Note will cease to be outstanding and the rights of the Holder in respect thereof shall terminate (other than the right to receive the Change in Control Payment Price as aforesaid).

(d) Notwithstanding anything to the contrary in this Section 6.09, the Company shall not be required to make a Change of Control Offer upon a Change of Control if a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements set forth in this Section 6.09 hereof and all other provisions of this Indenture applicable to a Change of Control Offer made by the Company and purchases all Notes validly tendered and not withdrawn under such Change of Control Offer.

SECTION 6.10. PAYMENT OF ADDITIONAL INTEREST.

If Additional Interest is payable by the Company pursuant to the Registration Rights Agreement, the Company shall deliver to the Trustee a certificate to that effect stating (i) the amount of such Additional Interest that is payable and (ii) the date on which such Additional Interest is payable. Unless and until a Trust Officer of the Trustee receives such a certificate, the Trustee may assume without inquiry that no such Additional Interest is payable.

If the Company has paid Additional Interest directly to the Persons entitled to it, the Company shall deliver to the Trustee a certificate setting forth the particulars of such payment.

ARTICLE 7.
SUCCESSORS

SECTION 7.01. MERGER, CONSOLIDATION, OR SALE OF ASSETS.

The Company shall not, directly or indirectly, consolidate or merge with or into (whether or not the Company is the surviving corporation), or sell, assign, transfer, convey or otherwise dispose of all or substantially all of its properties or assets in one or more related transactions to, another Person unless (i) the Company is the surviving corporation or the Person formed by or surviving any such

consolidation or merger (if other than the Company) or to which such sale, assignment, transfer, conveyance or other disposition shall have been made is a corporation organized or existing under the laws of the United States, any state thereof or the District of Columbia, (ii) the Person formed by or surviving any such consolidation or merger (if other than the Company) or the Person to which such sale, assignment, transfer, conveyance or other disposition shall have been made assumes all the obligations of the Company under the Registration Rights Agreement, the Notes and this Indenture pursuant to a supplemental indenture in a form reasonably satisfactory to the Trustee, (iii) immediately after such transaction, no Default or Event of Default exists and (iv) the Company or the surviving corporation, as the case may be, shall have delivered to the Trustee and Officers' Certificate and an Opinion of Counsel, each stating that such merger, consolidation, conveyance, transfer or lease comply with this Article Seven and that all conditions precedent herein provided for relating to such transaction have been satisfied.

SECTION 7.02. SUCCESSOR CORPORATION SUBSTITUTED.

Upon any consolidation or merger, or any sale, assignment, transfer, lease, conveyance or other disposition of all or substantially all of the assets of the Company in accordance with Section 7.01 hereof, the successor corporation formed by such consolidation or into or with which the Company is merged or to which such sale, assignment, transfer, lease, conveyance or other disposition is made shall succeed to, and be substituted for (so that from and after the date of such consolidation, merger, sale, lease, conveyance or other disposition, the provisions of this Indenture referring to the "Company" shall refer instead to the successor corporation and not to the Company), and may exercise every right and power of the Company under this Indenture with the same effect as if such successor Person had been named as the Company herein; PROVIDED, HOWEVER, that the predecessor Company shall not be relieved from the obligation to pay the principal of and interest on the Notes except in the case of a sale, assignment, transfer, conveyance or other disposition of all of the Company's assets that meets the requirements of Section 7.01 hereof.

ARTICLE 8.
DEFAULTS AND REMEDIES

SECTION 8.01. EVENTS OF DEFAULT.

An "Event of Default" occurs if:

(a) the Company defaults in the payment when due of interest on, or Additional Interest with respect to, the Notes and such default continues for a period of 30 days;

(b) the Company defaults in the payment when due of principal of or premium, if any, on the Notes when the same becomes due and payable at maturity, upon redemption (including in connection with an offer to purchase) or otherwise;

(c) the Company fails to comply with any of the provisions of Section 6.09 hereof;

(d) the Company fails to observe or perform any other covenant, representation, warranty or other agreement in this Indenture or the Notes for 60 days after notice to the Company by the Trustee or the Holders of at least 25% in aggregate principal amount of the Notes then outstanding voting as a single class;

(e) the Company fails to provide timely notice of a Change of Control;

(f) the Company:

(i) commences a voluntary case,

(ii) consents to the entry of an order for relief against it in an involuntary case,

(iii) consents to the appointment of a custodian of it or for all or substantially all of its property,

(iv) makes a general assignment for the benefit of its creditors, or

(v) generally is not paying its debts as they become due; or

(g) a court of competent jurisdiction enters an order or decree under any Bankruptcy Law that:

(i) is for relief against the Company in an involuntary case;

(ii) appoints a custodian of the Company or for all or substantially all of the property of the Company; or

(iii) orders the liquidation of the Company;

and the order or decree remains unstayed and in effect for 60 consecutive days.

SECTION 8.02. ACCELERATION.

If any Event of Default (other than an Event of Default specified in clause (g) or (h) of Section 8.01 hereof with respect to the Company) occurs and is continuing, the Trustee or the Holders of at least 25% in principal amount of the then outstanding Notes may declare all the Notes to be due and payable immediately. Upon any such declaration, the Notes shall become due and payable immediately. Notwithstanding the foregoing, if an Event of Default specified in clause (g) or (h) of Section 8.01 hereof occurs with respect to the Company, all outstanding Notes shall be due and payable immediately without further action or notice. The Holders of a majority in aggregate principal amount of the then outstanding Notes by written notice to the Trustee may on behalf of all of the Holders rescind an acceleration and its consequences if the rescission would not conflict with any judgment or decree and if all existing Events of Default (except nonpayment of principal, interest or premium that has become due solely because of the acceleration) have been cured or waived.

SECTION 8.03. OTHER REMEDIES.

If an Event of Default occurs and is continuing, the Trustee may pursue any available remedy to collect the payment of principal, premium, if any, and interest on the Notes or to enforce the performance of any provision of the Notes or this Indenture.

The Trustee may maintain a proceeding even if it does not possess any of the Notes or does not produce any of them in the proceeding. A delay or omission by the Trustee or any Holder of a Note in exercising any right or remedy accruing upon an Event of Default shall not impair the right or remedy or

constitute a waiver of or acquiescence in the Event of Default. All remedies are cumulative to the extent permitted by law.

SECTION 8.04. WAIVER OF PAST DEFAULTS.

Subject to Section 8.02, Holders of not less than a majority in aggregate principal amount of the then outstanding Notes by notice to the Trustee may on behalf of the Holders of all of the Notes waive an existing Default or Event of Default and its consequences hereunder, except a continuing Default or Event of Default in the payment of the principal of, premium and Additional Interest, if any, or interest on, the Notes (including in connection with an offer to purchase) or a failure by the Company to convert any Notes into Common Stock (PROVIDED, HOWEVER, that the Holders of a majority in aggregate principal amount of the then outstanding Notes may rescind an acceleration and its consequences, including any related payment default that resulted from such acceleration). Upon any such waiver, such Default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured for every purpose of this Indenture; but no such waiver shall extend to any subsequent or other Default or impair any right consequent thereon.

SECTION 8.05. CONTROL BY MAJORITY.

Holders of a majority in principal amount of the then outstanding Notes may direct the time, method and place of conducting any proceeding for exercising any remedy available to the Trustee or exercising any trust or power conferred on it. However, the Trustee may refuse to follow any direction that conflicts with law or this Indenture that the Trustee determines may be unduly prejudicial to the rights of other Holders of Notes or that may involve the Trustee in personal liability.

SECTION 8.06. LIMITATION ON SUITS.

A Holder of a Note may pursue a remedy with respect to this Indenture or the Notes only if:

(a) the Holder of a Note gives to the Trustee written notice of a continuing Event of Default;

(b) the Holders of at least 25% in principal amount of the then outstanding Notes make a written request to the Trustee to pursue the remedy;

(c) such Holder of a Note or Holders of Notes offer and, if requested, provide to the Trustee indemnity satisfactory to the Trustee against any loss, liability or expense;

(d) the Trustee does not comply with the request within 60 days after receipt of the request and the offer and, if requested, the provision of indemnity; and

(e) during such 60-day period the Holders of a majority in principal amount of the then outstanding Notes do not give the Trustee a direction inconsistent with the request.

A Holder of a Note may not use this Indenture to prejudice the rights of another Holder of a Note or to obtain a preference or priority over another Holder of a Note.

SECTION 8.07. RIGHTS OF HOLDERS OF NOTES TO RECEIVE PAYMENT.

Notwithstanding any other provision of this Indenture, the right of any Holder of a Note to receive payment of principal, premium and Additional Interest, if any, and interest on the Note, on or

after the respective due dates expressed in the Note (including in connection with an offer to purchase), to convert such Note in accordance with Article 4 or to bring suit for the enforcement of any such payment on or after such respective dates, shall not be impaired or affected without the consent of such Holder.

SECTION 8.08. COLLECTION SUIT BY TRUSTEE.

If an Event of Default specified in Section 8.01(a) or (b) occurs and is continuing, the Trustee is authorized to recover judgment in its own name and as trustee of an express trust against the Company for the whole amount of principal of, premium and Additional Interest, if any, and interest remaining unpaid on the Notes and interest on overdue principal and, to the extent lawful, interest and such further amount as shall be sufficient to cover the costs and expenses of collection, including the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel.

SECTION 8.09. TRUSTEE MAY FILE PROOFS OF CLAIM.

The Trustee is authorized to file such proofs of claim and other papers or documents as may be necessary or advisable in order to have the claims of the Trustee (including any claim for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel) and the Holders of the Notes allowed in any judicial proceedings relative to the Company (or any other obligor upon the Notes), its creditors or its property and shall be entitled and empowered to collect, receive and distribute any money or other property payable or deliverable on any such claims and any custodian in any such judicial proceeding is hereby authorized by each Holder to make such payments to the Trustee, and in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due to it for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel, and any other amounts due the Trustee under Section 9.07 hereof. To the extent that the payment of any such compensation, expenses, disbursements and advances of the Trustee, its agents and counsel, and any other amounts due the Trustee under Section 9.07 hereof out of the estate in any such proceeding, shall be denied for any reason, payment of the same shall be secured by a Lien on, and shall be paid out of, any and all distributions, dividends, money, securities and other properties that the Holders may be entitled to receive in such proceeding whether in liquidation or under any plan of reorganization or arrangement or otherwise. Nothing herein contained shall be

deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Holder any plan of reorganization, arrangement, adjustment or composition affecting the Notes or the rights of any Holder, or to authorize the Trustee to vote in respect of the claim of any Holder in any such proceeding.

SECTION 8.10. PRIORITIES.

If the Trustee collects any money pursuant to this Article, it shall pay out the money in the following order:

FIRST: to the Trustee, its agents and attorneys for amounts due under Section 9.07 hereof, including payment of all compensation, expense and liabilities incurred, and all advances made, by the Trustee and the costs and expenses of collection;

SECOND: to Holders of Notes for amounts due and unpaid on the Notes for principal, premium and Additional Interest, if any, and interest, ratably, without preference or priority of

any kind, according to the amounts due and payable on the Notes for principal, premium and Additional Interest, if any and interest, respectively; and

THIRD: to the Company or to such party as a court of competent jurisdiction shall direct.

The Trustee may fix a record date and payment date for any payment to Holders of Notes pursuant to this Section 8.10.

SECTION 8.11. UNDERTAKING FOR COSTS.

In any suit for the enforcement of any right or remedy under this Indenture or in any suit against the Trustee for any action taken or omitted by it as a Trustee, a court in its discretion may require the filing by any party litigant in the suit of an undertaking to pay the costs of the suit, and the court in its discretion may assess reasonable costs, including reasonable attorneys' fees, against any party litigant in the suit, having due regard to the merits and good faith of the claims or defenses made by the party litigant. This Section does not apply to a suit by the Trustee, a suit by a Holder of a Note pursuant to Section 8.07 hereof, or a suit by Holders of more than 10% in principal amount of the then outstanding Notes.

ARTICLE 9.
TRUSTEE

SECTION 9.01. DUTIES OF TRUSTEE.

(a) If an Event of Default has occurred and is continuing, the Trustee shall exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in its exercise, as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs.

(b) Except during the continuance of an Event of Default:

(i) the duties of the Trustee shall be determined solely by the express provisions of this Indenture and the Trustee need perform only those duties that are specifically set forth in this Indenture and no others, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and

(ii) in the absence of bad faith on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture. However, the Trustee shall examine the certificates and opinions to determine whether or not they conform to the requirements of this Indenture.

(c) The Trustee may not be relieved from liabilities for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that:

(i) this paragraph does not limit the effect of paragraph (b) of this Section;

(ii) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer, unless it is proved that the Trustee was negligent in ascertaining the pertinent facts; and

(iii) the Trustee shall not be liable with respect to any action it takes or omits to take in good faith in accordance with a direction received by it pursuant to Section 7.05 hereof.

(d) Whether or not therein expressly so provided, every provision of this Indenture that in any way relates to the Trustee is subject to paragraphs (a), (b), and (c) of this Section.

(e) No provision of this Indenture shall require the Trustee to expend or risk its own funds or incur any liability. The Trustee shall be under no obligation to exercise any of its rights and powers under this Indenture at the request of any Holders, unless such Holder shall have offered to the Trustee security and indemnity satisfactory to it against any loss, liability or expense.

(f) The Trustee shall not be liable for interest on any money received by it except as the Trustee may agree in writing with the Company. Money held in trust by the Trustee need not be segregated from other funds except to the extent required by law.

SECTION 9.02. RIGHTS OF TRUSTEE.

(a) The Trustee may conclusively rely upon any document believed by it to be genuine and to have been signed or presented by the proper Person. The Trustee need not investigate any fact or matter stated in the document.

(b) Before the Trustee acts or refrains from acting, it may require an Officers' Certificate or an Opinion of Counsel or both. The Trustee shall not be liable for any action it takes or omits to take in good faith in reliance on such Officers' Certificate or Opinion of Counsel. The Trustee may consult with counsel and the written advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection from liability in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon.

(c) The Trustee may act through its attorneys and agents and shall not be responsible for the misconduct or negligence of any agent appointed with due care.

(d) The Trustee shall not be liable for any action it takes or omits to take in good faith that it believes to be authorized or within the rights or powers conferred upon it by this Indenture.

(e) Unless otherwise specifically provided in this Indenture, any demand, request, direction or notice from the Company shall be sufficient if signed by an Officer of the Company.

(f) The Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders unless such Holders shall have offered to the Trustee reasonable security or indemnity against the costs, expenses and liabilities that might be incurred by it in compliance with such request or direction.

(g) The Trustee shall not be charged with knowledge of any Default or Event of Default with respect to the Notes unless either (1) a Responsible Officer shall have actual

knowledge of such Default or Event of Default or (2) written notice of such Default or Event of Default shall have been given to the Trustee by the Company of by any Holder of the Notes.

SECTION 9.03. INDIVIDUAL RIGHTS OF TRUSTEE.

The Trustee in its individual or any other capacity may become the owner or pledgee of Notes and may otherwise deal with the Company or any Affiliate of the Company with the same rights it would have if it were not Trustee. However, in the event that the Trustee acquires any conflicting interest it must eliminate such conflict within 90 days, apply to the SEC for permission to continue as trustee or resign. Any Agent may do the same with like rights and duties. The Trustee is also subject to Sections 9.10 and 9.11 hereof.

SECTION 9.04. TRUSTEE'S DISCLAIMER.

The Trustee shall not be responsible for and makes no representation as

to the validity or adequacy of this Indenture or the Notes, it shall not be accountable for the Company's use of the proceeds from the Notes or any money paid to the Company or upon the Company's direction under any provision of this Indenture, it shall not be responsible for the use or application of any money received by any Paying Agent other than the Trustee, and it shall not be responsible for any statement or recital herein or any statement in the Notes or any other document in connection with the sale of the Notes or pursuant to this Indenture other than its certificate of authentication.

SECTION 9.05. NOTICE OF DEFAULTS.

If a Default or Event of Default occurs and is continuing and if it is known to the Trustee, the Trustee shall mail to Holders of Notes a notice of the Default or Event of Default within 90 days after it occurs. Except in the case of a Default or Event of Default in payment of principal of, premium, if any, or interest on any Note, the Trustee may withhold the notice if and so long as a committee of its Responsible Officers in good faith determines that withholding the notice is in the interests of the Holders of the Notes.

SECTION 9.06. REPORTS BY TRUSTEE TO HOLDERS OF THE NOTES.

Within 60 days after each May 15 beginning with the May 15 following the date of this Indenture, and for so long as Notes remain outstanding, the Trustee shall mail to the Holders of the Notes a brief report dated as of such reporting date that complies with TIA ss. 313(a) (but if no event described in TIA ss. 313(a) has occurred within the twelve months preceding the reporting date, no report need be transmitted). The Trustee also shall comply with TIA ss. 313(b)(2). The Trustee shall also transmit by mail all reports as required by TIA ss. 313(c).

A copy of each report at the time of its mailing to the Holders of Notes shall be mailed to the Company and filed with the SEC and each stock exchange on which the Notes are listed in accordance with TIA ss. 313(d). The Company shall promptly notify the Trustee when the Notes are listed on any stock exchange.

SECTION 9.07. COMPENSATION AND INDEMNITY.

The Company shall pay to the Trustee from time to time reasonable compensation for its acceptance of this Indenture and services hereunder. The Trustee's compensation shall not be limited by

any law on compensation of a trustee of an express trust. The Company shall reimburse the Trustee promptly upon request for all reasonable disbursements, advances and expenses incurred or made by it in addition to the compensation for its services. Such expenses shall include the reasonable compensation, disbursements and expenses of the Trustee's agents and counsel.

The Company shall indemnify the Trustee against any and all losses, liabilities or expenses incurred by it arising out of or in connection with the acceptance or administration of its duties under this Indenture, including the costs and expenses of enforcing this Indenture against the Company (including this Section 9.07) and defending itself against any claim (whether asserted by the Company or any Holder or any other person) or liability in connection with the exercise or performance of any of its powers or duties hereunder, except to the extent any such loss, liability or expense may be attributable to its negligence or bad faith. The Trustee shall notify the Company promptly of any claim for which it may seek indemnity. Failure by the Trustee to so notify the Company shall not relieve the Company of its obligations hereunder. The Company shall defend the claim and the Trustee shall cooperate in the defense. The Trustee may have separate counsel and the Company shall pay the reasonable fees and expenses of such counsel. The Company need not pay for any settlement made without its consent, which consent shall not be unreasonably withheld.

The obligations of the Company under this Section 9.07 shall survive the resignation or removal of the Trustee and the satisfaction and discharge of this Indenture.

To secure the Company's payment obligations in this Section, the Trustee shall have a Lien prior to the Notes on all money or property held or collected by the Trustee, except that held in trust to pay principal and interest on particular Notes. Such Lien shall survive the satisfaction and discharge of this Indenture.

When the Trustee incurs expenses or renders services after an Event of Default specified in Section 8.01(g) or (h) hereof occurs, the expenses and the compensation for the services (including the fees and expenses of its agents and counsel) are intended to constitute expenses of administration under any Bankruptcy Law.

The Trustee shall comply with the provisions of TIA ss. 313(b)(2) to the extent applicable.

SECTION 9.08. REPLACEMENT OF TRUSTEE.

A resignation or removal of the Trustee and appointment of a successor Trustee shall become effective only upon the successor Trustee's acceptance of appointment as provided in this Section.

The Trustee may resign in writing at any time and be discharged from the trust hereby created by so notifying the Company. The Holders of a majority in principal amount of the then outstanding Notes may remove the Trustee by so notifying the Trustee and the Company in writing. The Company may remove the Trustee if:

(a) the Trustee fails to comply with Section 9.10 hereof;

(b) the Trustee is adjudged a bankrupt or an insolvent or an order for relief is entered with respect to the Trustee under any Bankruptcy Law;

(c) a custodian or public officer takes charge of the Trustee or its property; or

(d) the Trustee becomes incapable of acting.

If the Trustee resigns or is removed or if a vacancy exists in the office of Trustee for any reason, the Company shall promptly appoint a successor Trustee. Within one year after the successor Trustee takes office, the Holders of a majority in principal amount of the then outstanding Notes may appoint a successor Trustee to replace the successor Trustee appointed by the Company.

If a successor Trustee does not take office within 60 days after the retiring Trustee resigns or is removed, the retiring Trustee, the Company, or the Holders of at least 10% in principal amount of the then outstanding Notes may petition any court of competent jurisdiction for the appointment of a successor Trustee.

If the Trustee, after written request by any Holder who has been a Holder for at least six months, fails to comply with Section 9.10, such Holder may petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor Trustee.

A successor Trustee shall deliver a written acceptance of its appointment to the retiring Trustee and to the Company. Thereupon, the resignation or removal of the retiring Trustee shall become effective, and the successor Trustee shall have all the rights, powers and duties of the Trustee under this Indenture. The successor Trustee shall mail a notice of its succession to Holders. The retiring Trustee shall promptly transfer all property held by it as Trustee to the successor Trustee, PROVIDED all sums owing to the Trustee hereunder have been paid and subject to the Lien provided for in Section 9.07 hereof. Notwithstanding replacement of the Trustee pursuant to this Section 9.08, the Company's obligations under Section 9.07 hereof shall continue for the benefit of the retiring Trustee.

SECTION 9.09. SUCCESSOR TRUSTEE BY MERGER, ETC.

If the Trustee consolidates, merges or converts into, or transfers all or substantially all of its corporate trust business to, another corporation, the successor corporation without any further act shall be the successor Trustee.

SECTION 9.10. ELIGIBILITY; DISQUALIFICATION.

There shall at all times be a Trustee hereunder that is a corporation organized and doing business under the laws of the United States of America or of any state thereof that is authorized under such laws to exercise corporate trustee power, that is subject to supervision or examination by federal or state authorities and that has a combined capital and surplus of at least $100 million as set forth in its most recent published annual report of condition.

This Indenture shall always have a Trustee who satisfies the requirements of TIA ss. 310(a)(1), (2) and (5). The Trustee is subject to TIA ss. 310(b).

SECTION 9.11. PREFERENTIAL COLLECTION OF CLAIMS AGAINST COMPANY.

The Trustee is subject to TIA ss. 311(a), excluding any creditor relationship listed in TIA ss. 311(b). A Trustee who has resigned or been removed shall be subject to TIA ss. 311(a) to the extent indicated therein.

ARTICLE 10.
SATISFACTION AND DISCHARGE

SECTION 10.01. SATISFACTION AND DISCHARGE.

This Indenture will be discharged and will cease to be of further effect as to all Notes issued hereunder, when:

(1) either:

(a) all Notes that have been authenticated (except lost, stolen or destroyed Notes that have been replaced or paid and Notes for whose payment money has theretofore been deposited in trust and thereafter repaid to the Company) have been delivered to the Trustee for cancellation; or

(b) all Notes that have not been delivered to the Trustee for cancellation have become due and payable by reason of the making of a notice of redemption or otherwise or will become due and payable within one year and the Company has irrevocably deposited or caused to be deposited with the Trustee as trust funds in trust solely for the benefit of the Holders, cash in U.S. dollars, non-callable Government Securities, or a combination thereof, in such amounts as will be sufficient without consideration of any reinvestment of interest, to pay and discharge the entire indebtedness on the Notes not delivered to the Trustee for cancellation for principal, premium and Additional Interest, if any, and accrued interest to the date of maturity or redemption;

(2) no Default or Event of Default shall have occurred and be continuing on the date of such deposit or shall occur as a result of such deposit and such deposit will not result in a breach or violation of, or constitute a default under, any other instrument to which the Company is a party or by which the Company is bound;

(3) the Company has paid or caused to be paid all sums payable by it under this Indenture; and

(4) the Company has delivered irrevocable instructions to the Trustee under this Indenture to apply the deposited money toward the payment of the Notes at maturity or the redemption date, as the case may be.

In addition, the Company must deliver an Officers' Certificate and an Opinion of Counsel to the Trustee stating that all conditions precedent to satisfaction and discharge have been satisfied.

Notwithstanding the satisfaction and discharge of this Indenture, if money shall have been deposited with the Trustee pursuant to subclause (b) of clause (1) of this Section, the provisions of Section 10.02 shall survive.

SECTION 10.02. APPLICATION OF TRUST MONEY.

All money deposited with the Trustee pursuant to Section 10.01 shall be held in trust and applied by it, in accordance with the provisions of the Notes and this Indenture, to the payment, either directly or through any Paying Agent (including the Company acting as its own Paying Agent) as the Trustee may determine, to the Persons entitled thereto, of the principal (and premium, if any) and interest for whose

payment such money has been deposited with the Trustee; but such money need not be segregated from other funds except to the extent required by law.

If the Trustee or Paying Agent is unable to apply any money or Government Securities in accordance with Section 10.01 by reason of any legal proceeding or by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, the Company's obligations under this Indenture and the Notes shall be revived and reinstated as though no deposit had occurred pursuant to Section 10.01; PROVIDED that if the Company has made any payment of principal of, premium, if any, or interest on any Notes because of the reinstatement of its obligations, the Company shall be subrogated to the rights of the Holders of such Notes to receive such payment from the money or Government Securities held by the Trustee or Paying Agent.

SECTION 10.03. REPAYMENT TO COMPANY.

The Trustee and each Paying Agent shall promptly pay to the Company upon request any excess money (i) deposited with them pursuant to Section 10.1 and (ii) held by them at any time.

The Trustee and each Paying Agent shall pay to the Company upon request any money held by them for the payment of principal or interest that remains unclaimed for two years after a right to such money has matured; provided, however, that the Trustee or such Paying Agent, before being required to make any such payment, may at the expense of the Company cause to be mailed to each Holder entitled to such money notice that such money remains unclaimed and that after a date specified therein, which shall be at least 30 days from the date of such mailing, any unclaimed balance of such money then remaining will be repaid to the Company. After payment to the Company, Holders entitled to money must look to the Company for payment as general creditors.

SECTION 10.04. REINSTATEMENT.

If the Trustee or any Paying Agent is unable to apply any money in accordance with Section 10.2 by reason of any legal proceeding or by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the Company's obligations under this Indenture and the Notes shall be revived and reinstated as though no deposit had occurred pursuant to Section 10.1 until such time as the Trustee or such Paying Agent is permitted to apply all such money in accordance with Section 10.2; provided, however, that if the Company has made any payment of the principal of or interest on any Notes because of the reinstatement of its obligations, the Company shall be subrogated to the rights of the Holders of such Notes to receive any such payment from the money held by the Trustee or such Paying Agent.

ARTICLE 11.
AMENDMENT, SUPPLEMENT AND WAIVER

SECTION 11.01. WITHOUT CONSENT OF HOLDERS OF NOTES.

Notwithstanding Section 11.02 of this Indenture, the Company and the Trustee may amend or supplement this Indenture or the Notes without the consent of any Holder of a Note:

(a) to cure any ambiguity, defect or inconsistency;

(b) to provide for uncertificated Notes in addition to or in place of certificated Notes or to alter the provisions of Article 2 hereof (including the related definitions) in a manner that does not materially adversely affect any Holder;

(c) to provide for the assumption of the Company's obligations to the Holders of the Notes by a successor to the Company pursuant to Article 7 hereof;

(d) to make any change that would provide any additional rights or benefits to the Holders of the Notes or that does not adversely affect the legal rights hereunder of any Holder of the Note;

(e) to comply with requirements of the SEC in order to effect or maintain the qualification of this Indenture under the TIA; or

(f) to provide for the issuance of additional Notes pursuant to the purchasers option set forth in the Purchase Agreement.

Upon the request of the Company accompanied by a resolution of its Board of Directors authorizing the execution of any such amended or supplemental Indenture, and upon receipt by the Trustee of the documents described in Section 9.02 hereof, the Trustee shall join with the Company in the execution of any amended or supplemental Indenture authorized or permitted by the terms of this Indenture and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into such amended or supplemental Indenture that affects its own rights, duties or immunities under this Indenture or otherwise.

SECTION 11.02. WITH CONSENT OF HOLDERS OF NOTES.

Except as provided below in this Section 11.02, the Company and the Trustee may amend or supplement this Indenture (including Section 6.09 hereof) and the Notes with the consent of the Holders of at least a majority in principal amount of the Notes then outstanding voting as a single class (including consents obtained in connection with a tender offer or exchange offer

for, or purchase of, the Notes), and, subject to Sections 8.04 and 8.07 hereof, any existing Default or Event of Default (other than a Default or Event of Default in the payment of the principal of, premium, if any, or interest on the Notes, except a payment default resulting from an acceleration that has been rescinded) or compliance with any provision of this Indenture or the Notes may be waived with the consent of the Holders of a majority in principal amount of the then outstanding Notes voting as a single class (including consents obtained in connection with a tender offer or exchange offer for, or purchase of, the Notes). Section 2.08 hereof shall determine which Notes are considered to be "outstanding" for purposes of this Section 11.02.

Upon the request of the Company accompanied by a resolution of its Board of Directors authorizing the execution of any such amended or supplemental Indenture, and upon the filing with the Trustee of evidence satisfactory to the Trustee of the consent of the Holders of Notes as aforesaid, and upon receipt by the Trustee of the documents described in Section 9.02 hereof, the Trustee shall join with the Company in the execution of such amended or supplemental Indenture unless such amended or supplemental Indenture directly affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion, but shall not be obligated to, enter into such amended or supplemental Indenture.

It shall not be necessary for the consent of the Holders of Notes under this Section 11.02 to approve the particular form of any proposed amendment or waiver, but it shall be sufficient if such consent approves the substance thereof.

After an amendment, supplement or waiver under this Section becomes effective, the Company shall mail to the Holders of Notes affected thereby a notice briefly describing the amendment, supplement or waiver. Any failure of the Company to mail such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such amended or supplemental Indenture or waiver. Subject to Sections 8.04 and 8.07 hereof, the Holders of a majority in aggregate principal amount of the Notes then outstanding voting as a single class may waive compliance in a particular instance by the Company with any provision of this Indenture or the Notes. However, without the consent of each Holder affected, an amendment or waiver under this Section 11.02 may not (with respect to any Notes held by a non-consenting Holder):

(a) reduce the principal amount of Notes whose Holders must consent to an amendment, supplement or waiver;

(b) reduce the principal of or change the fixed maturity of any Note or alter or waive any of the provisions with respect to the redemption of the Notes except as provided above with respect to Section 6.09 hereof;

(c) reduce the rate of or change the time for payment of interest, including default interest, on any Note;

(d) waive a Default or Event of Default in the payment of principal of or premium, if any, or interest on the Notes (except a rescission of acceleration of the Notes by the Holders of at least a majority in aggregate principal amount of the then outstanding Notes and a waiver of the payment default that resulted from such acceleration);

(e) make any Note payable in money other than that stated in the Notes;

(f) make any change in the provisions of this Indenture relating to waivers of past Defaults or the rights of Holders of Notes to receive payments of principal of or interest on the Notes; or

(g) make any change in Section 8.04 or 8.07 hereof or in the foregoing amendment and waiver provisions.

SECTION 11.03. COMPLIANCE WITH TRUST INDENTURE ACT.

Every amendment or supplement to this Indenture or the Notes shall be set forth in a amended or supplemental Indenture that complies with the TIA as then in effect.

SECTION 11.04. REVOCATION AND EFFECT OF CONSENTS.

Until an amendment, supplement or waiver becomes effective, a consent to it by a Holder of a Note is a continuing consent by the Holder of a Note and every subsequent Holder of a Note or portion of a Note that evidences the same debt as the consenting Holder's Note, even if notation of the consent is not made on any Note. However, any such Holder of a Note or subsequent Holder of a Note may revoke the consent as to its Note if the Trustee receives written notice of revocation before the date the waiver,

supplement or amendment becomes effective. An amendment, supplement or waiver becomes effective in accordance with its terms and thereafter binds every Holder.

SECTION 11.05. NOTATION ON OR EXCHANGE OF NOTES.

The Trustee may place an appropriate notation about an amendment, supplement or waiver on any Note thereafter authenticated. The Company in exchange for all Notes may issue and the Trustee shall, upon receipt of an Authentication Order, authenticate new Notes that reflect the amendment, supplement or waiver.

Failure to make the appropriate notation or issue a new Note shall not affect the validity and effect of such amendment, supplement or waiver.

SECTION 11.06. TRUSTEE TO SIGN AMENDMENTS, ETC.

The Trustee shall sign any amended or supplemental Indenture authorized pursuant to this Article Nine if the amendment or supplement does not adversely affect the rights, duties, liabilities or immunities of the Trustee. The Company may not sign an amendment or supplemental Indenture until the Board of Directors approves it. In executing any amended or supplemental indenture, the Trustee shall be entitled to receive and (subject to Section 9.01 hereof) shall be fully protected in relying upon, in addition to the documents required by Section 12.04 hereof, an Officer's Certificate and an Opinion of Counsel stating that the execution of such amended or supplemental indenture is authorized or permitted by this Indenture.

ARTICLE 12.
MISCELLANEOUS

SECTION 12.01. TRUST INDENTURE ACT CONTROLS.

If any provision of this Indenture limits, qualifies or conflicts with the duties imposed by TIA ss.318(c), the imposed duties shall control.

SECTION 12.02. NOTICES.

Any notice or communication by the Company or the Trustee to the others is duly given if in writing and delivered in Person or mailed by first class mail (registered or certified, return receipt requested), telex, telecopier or overnight air courier guaranteeing next day delivery, to the others' address:

If to the Company:

EMCORE Corporation
145 Belmont Drive
Somerset, New Jersey 08873
Telecopier No.: (732) 271-9686
Attention: Chief Financial Officer

With a copy to:
White & Case, LLP
200 South Biscayne Boulevard
Miami, Florida 33131
Telecopier No.: (305) 358-5744
Attention: Jorge L. Freeland, Esq.

If to the Trustee:
Wilmington Trust Company
Rodney Square North
1100 North Market Street
Wilmington, Delaware 19890
Telecopier No.: (302) 651-8882
Attention: Bruce L. Bisson

The Company or the Trustee, by notice to the others may designate additional or different addresses for subsequent notices or communications.

All notices and communications (other than those sent to Holders) shall be deemed to have been duly given: at the time delivered by hand, if personally delivered; five Business Days after being deposited in the mail, postage prepaid, if mailed; when answered back, if telexed; when receipt acknowledged, if telecopied; and the next Business Day after timely delivery to the courier,

if sent by overnight air courier guaranteeing next day delivery.

Any notice or communication to a Holder shall be mailed by first class mail, certified or registered, return receipt requested, or by overnight air courier guaranteeing next day delivery to its address shown on the register kept by the Registrar. Any notice or communication shall also be so mailed to any Person described in TIA ss. 313(c), to the extent required by the TIA. Failure to mail a notice or communication to a Holder or any defect in it shall not affect its sufficiency with respect to other Holders.

If a notice or communication is mailed in the manner provided above within the time prescribed, it is duly given, whether or not the addressee receives it.

If the Company mails a notice or communication to Holders, it shall mail a copy to the Trustee and each Agent at the same time.

SECTION 12.03. COMMUNICATION BY HOLDERS OF NOTES WITH OTHER HOLDERS OF NOTES.

Holders may communicate pursuant to TIA ss. 312(b) with other Holders with respect to their rights under this Indenture or the Notes. The Company, the Trustee, the Registrar and anyone else shall have the protection of TIA ss. 312(c).

SECTION 12.04. CERTIFICATE AND OPINION AS TO CONDITIONS PRECEDENT.

Upon any request or application by the Company to the Trustee to take any action under this Indenture, the Company shall furnish to the Trustee:

(a) an Officers' Certificate in form and substance reasonably satisfactory to the Trustee (which shall include the statements set forth in Section 12.05 hereof) stating that, in the opinion of the

signers, all conditions precedent and covenants, if any, provided for in this Indenture relating to the proposed action have been satisfied; and

(b) an Opinion of Counsel in form and substance reasonably satisfactory to the Trustee (which shall include the statements set forth in Section 12.05 hereof) stating that, in the opinion of such counsel, all such conditions precedent and covenants have been satisfied.

SECTION 12.05. STATEMENTS REQUIRED IN CERTIFICATE OR OPINION.

Each certificate or opinion with respect to compliance with a condition or covenant provided for in this Indenture (other than a certificate provided pursuant to TIA ss. 314(a)(4)) shall comply with the provisions of TIA ss. 314(e) and shall include:

(a) a statement that the Person making such certificate or opinion has read such covenant or condition;

(b) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;

(c) a statement that, in the opinion of such Person, he or she has made such examination or investigation as is necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been satisfied; and

(d) a statement as to whether or not, in the opinion of such Person, such condition or covenant has been satisfied.

SECTION 12.06. RULES BY TRUSTEE AND AGENTS.

The Trustee may make reasonable rules for action by or at a meeting of Holders. The Registrar or Paying Agent may make reasonable rules and set reasonable requirements for its functions.

SECTION 12.07. NO PERSONAL LIABILITY OF DIRECTORS, OFFICERS, EMPLOYEES AND STOCKHOLDERS.

No past, present or future director, officer, employee, incorporator or stockholder of the Company, as such, shall have any liability for any obligations of the Company under the Notes, this Indenture or for any claim based on, in respect of, or by reason of, such obligations or their creation. Each Holder by accepting a Note waives and releases all such liability. The waiver and release are part of the consideration for issuance of the Notes.

SECTION 12.08. GOVERNING LAW.

THE INTERNAL LAW OF THE STATE OF NEW YORK SHALL GOVERN AND BE USED TO CONSTRUE THIS INDENTURE, THE NOTES WITHOUT GIVING EFFECT TO APPLICABLE PRINCIPLES OF CONFLICTS OF LAW TO THE EXTENT THAT THE APPLICATION OF THE LAWS OF ANOTHER JURISDICTION WOULD BE REQUIRED THEREBY.

SECTION 12.09. NO ADVERSE INTERPRETATION OF OTHER AGREEMENTS.

This Indenture may not be used to interpret any other indenture, loan or debt agreement of the Company or its Subsidiaries or of any other Person. Any such indenture, loan or debt agreement may not be used to interpret this Indenture.

SECTION 12.10. SUCCESSORS.

All agreements of the Company in this Indenture and the Notes shall bind its successors. All agreements of the Trustee in this Indenture shall bind its successors.

SECTION 12.11. SEVERABILITY.

In case any provision in this Indenture or in the Notes shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

SECTION 12.12. COUNTERPART ORIGINALS.

The parties may sign any number of copies of this Indenture. Each signed copy shall be an original, but all of them together represent the same agreement.

SECTION 12.13. TABLE OF CONTENTS, HEADINGS, ETC.

The Table of Contents, Cross-Reference Table and Headings of the Articles and Sections of this Indenture have been inserted for convenience of reference only, are not to be considered a part of this Indenture and shall in no way modify or restrict any of the terms or provisions hereof.

[Signatures on following page]

SIGNATURES

Dated as of May 7, 2001

EMCORE Corporation

By: /s/ Howard Brodie

Name: Howard Brodie
Title: Vice President

Wilmington Trust Company,
as Trustee

By: /s/ James D. Nesci

Name: James D. Nesci
Title: Authorized Signer

UNLESS THIS CERTIFICATE IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY TO THE COMPANY OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE OR PAYMENT, AND ANY CERTIFICATE ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY (AND ANY PAYMENT HEREON IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY), ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL SINCE THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN. THIS NOTE IS A GLOBAL NOTE WITHIN THE MEANING OF THE INDENTURE HEREINAFTER REFERRED TO AND IS REGISTERED IN THE NAME OF A DEPOSITARY OR A NOMINEE THEREOF. THIS NOTE IS EXCHANGEABLE FOR SECURITIES REGISTERED IN THE NAME OF A PERSON OTHER THAN THE DEPOSITARY OR ITS NOMINEE ONLY IN THE LIMITED CIRCUMSTANCES DESCRIBED IN THE INDENTURE AND, UNLESS AND UNTIL IT IS EXCHANGED IN WHOLE OR IN PART FOR SECURITIES IN DEFINITIVE FORM, THIS NOTE MAY NOT BE TRANSFERRED EXCEPT AS A WHOLE BY THE DEPOSITARY TO A NOMINEE OF THE DEPOSITARY OR BY A NOMINEE OF THE DEPOSITARY TO THE DEPOSITARY OR ANOTHER NOMINEE OF THE DEPOSITARY OR BY THE DEPOSITARY OR ANY SUCH NOMINEE TO A SUCCESSOR DEPOSITARY OR A NOMINEE OF SUCH SUCCESSOR DEPOSITARY.

THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933 (THE "SECURITIES ACT"), AND THIS NOTE AND THE COMMON STOCK ISSUABLE UPON CONVERSION THEREOF MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN APPLICABLE EXEMPTION THEREFROM. EACH PURCHASER OF THIS NOTE IS HEREBY NOTIFIED THAT THE SELLER OF THIS NOTE MAY BE RELYING ON THE EXEMPTION FROM THE PROVISIONS OF SECTION 5 OF THE SECURITIES ACT PROVIDED BY RULE 144A THEREUNDER.

THE HOLDER OF THIS NOTE AGREES FOR THE BENEFIT OF THE COMPANY THAT (A) THIS NOTE AND THE NOTE COMMON STOCK ISSUABLE UPON CONVERSION THEREOF MAY BE OFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED, ONLY (I) IN THE UNITED STATES TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (II) OUTSIDE THE UNITED STATES IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 904 UNDER THE SECURITIES ACT, (III) PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT PROVIDED BY RULE 144 THEREUNDER (IF AVAILABLE) OR (IV) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH OF CASES (I) THROUGH (IV) IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES, AND (B) THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY PURCHASER OF THIS NOTE FROM IT OF THE RESALE RESTRICTIONS REFERRED TO IN (A) ABOVE. IN ANY CASE, THE HOLDER HEREOF WILL NOT, DIRECTLY OR INDIRECTLY, ENGAGE IN ANY HEDGING TRANSACTIONS WITH REGARD TO THE NOTES EXCEPT AS PERMITTED UNDER THE SECURITIES ACT.

THE HOLDER OF THIS NOTE IS ENTITLED TO THE BENEFITS OF A REGISTRATION RIGHTS AGREEMENT (AS SUCH TERM IS DEFINED IN THE INDENTURE REFERRED TO ON THE REVERSE HEREOF) AND, BY ITS ACCEPTANCE HEREOF, AGREES TO BE BOUND BY AND TO COMPLY WITH THE PROVISIONS OF SUCH REGISTRATION RIGHTS AGREEMENT.

THIS NOTE MAY NOT BE SOLD OR TRANSFERRED TO, AND EACH PURCHASER BY ITS PURCHASE OF THIS SECURITY SHALL BE DEEMED TO HAVE REPRESENTED AND COVENANTED THAT IT IS NOT ACQUIRING THIS SECURITY FOR OR ON BEHALF OF, AND WILL NOT TRANSFER THIS SECURITY TO, ANY PENSION OR WELFARE PLAN AS DEFINED IN SECTION 3 OF THE EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974, AS AMENDED ("ERISA") EXCEPT THAT SUCH PURCHASE FOR OR ON BEHALF OF A PENSION OR WELFARE PLAN SHALL BE PERMITTED:

(1) TO THE EXTENT SUCH PURCHASE IS MADE BY OR ON BEHALF OF A BANK COLLECTIVE INVESTMENT FUND MAINTAINED BY THE PURCHASER IN WHICH NO PLAN (TOGETHER WITH ANY OTHER PLANS MAINTAINED BY THE SAME EMPLOYER OR EMPLOYEE ORGANIZATION) HAS AN INTEREST IN EXCESS OF 10% OF THE TOTAL ASSETS IN SUCH COLLECTIVE INVESTMENT FUND, AND THE OTHER APPLICABLE CONDITIONS OF PROHIBITED TRANSACTION CLASS EXEMPTION 91-38 ISSUED BY THE DEPARTMENT OF LABOR ARE SATISFIED;

(2) TO THE EXTENT SUCH PURCHASE IS MADE BY OR ON BEHALF OF AN INSURANCE COMPANY POOLED SEPARATE ACCOUNT MAINTAINED BY THE PURCHASER IN WHICH, AT ANY TIME WHILE THESE SECURITIES ARE OUTSTANDING, NO PLAN (TOGETHER WITH ANY OTHER PLANS MAINTAINED BY THE SAME EMPLOYER OR EMPLOYEE ORGANIZATION) HAS AN INTEREST IN EXCESS OF 10% OF THE TOTAL OF ALL ASSETS IN SUCH POOLED SEPARATE ACCOUNT, AND THE OTHER APPLICABLE

CONDITIONS OF PROHIBITED TRANSACTION CLASS EXEMPTION 90-1 ISSUED BY THE DEPARTMENT OF LABOR ARE SATISFIED;

(3) TO THE EXTENT SUCH PURCHASE IS MADE ON BEHALF OF A PLAN BY (A) AN INVESTMENT ADVISER REGISTERED UNDER THE INVESTMENT ADVISERS ACT OF 1940, AS AMENDED (THE "1940 ACT"), THAT HAD AS OF THE LAST DAY OF ITS MOST RECENT FISCAL YEAR TOTAL ASSETS UNDER ITS MANAGEMENT AND CONTROL IN EXCESS OF $50.0 MILLION AND HAD STOCKHOLDERS' OR PARTNERS' EQUITY IN EXCESS OF $750,000, AS SHOWN IN ITS MOST RECENT BALANCE SHEET PREPARED IN ACCORDANCE WITH GENERALLY ACCEPTED ACCOUNTING PRINCIPLES, OR (B) A BANK AS DEFINED IN SECTION 202(A)(2) OF THE 1940 ACT WITH EQUITY CAPITAL IN EXCESS OF $1.0 MILLION AS OF THE LAST DAY OF ITS MOST RECENT FISCAL YEAR, OR (C) AN INSURANCE COMPANY WHICH IS QUALIFIED UNDER THE LAWS OF MORE THAN ONE STATE TO MANAGE, ACQUIRE OR DISPOSE OF ANY ASSETS OF A PENSION OR WELFARE PLAN, WHICH INSURANCE COMPANY HAS AS OF THE LAST DAY OF ITS MOST RECENT FISCAL YEAR, NET WORTH IN EXCESS OF $1.0 MILLION AND WHICH IS SUBJECT TO SUPERVISION AND EXAMINATION BY A STATE AUTHORITY HAVING SUPERVISION OVER INSURANCE COMPANIES AND, IN ANY CASE, SUCH INVESTMENT ADVISER, BANK OR INSURANCE COMPANY IS OTHERWISE A QUALIFIED PROFESSIONAL

ASSET MANAGER, AS SUCH TERM IS USED IN PROHIBITED TRANSACTION CLASS EXEMPTION 84-14 ISSUED BY THE DEPARTMENT OF LABOR, AND THE ASSETS OF SUCH PLAN WHEN COMBINED WITH THE ASSETS OF OTHER PLANS ESTABLISHED OR MAINTAINED BY THE SAME EMPLOYER (OR AFFILIATE THEREOF) OR EMPLOYEE ORGANIZATION AND MANAGED BY SUCH INVESTMENT ADVISER, BANK OR INSURANCE COMPANY, DO NOT REPRESENT MORE THAN 20% OF THE TOTAL CLIENT ASSETS MANAGED BY SUCH INVESTMENT ADVISER, BANK OR INSURANCE COMPANY AT THE TIME OF THE TRANSACTION, AND THE OTHER APPLICABLE CONDITIONS OF SUCH EXEMPTION ARE OTHERWISE SATISFIED;

(4) TO THE EXTENT SUCH PLAN IS A GOVERNMENTAL PLAN (AS DEFINED AS SECTION 3 OF ERISA) WHICH IS NOT SUBJECT TO THE PROVISIONS OF TITLE 1 OF ERISA OR SECTION 401 OF THE INTERNAL REVENUE CODE OF 1986, AS AMENDED (THE "CODE");

(5) TO THE EXTENT SUCH PURCHASE IS MADE BY OR ON BEHALF OF AN INSURANCE COMPANY USING THE ASSETS OF ITS GENERAL ACCOUNT, THE RESERVES AND LIABILITIES FOR THE GENERAL ACCOUNT CONTRACTS HELD BY OR ON BEHALF OF ANY PLAN, TOGETHER WITH ANY OTHER PLANS MAINTAINED BY THE SAME EMPLOYER (OR ITS AFFILIATES) OR EMPLOYEE ORGANIZATION, DO NOT EXCEED 10% OF THE TOTAL RESERVES AND LIABILITIES OF THE INSURANCE COMPANY GENERAL ACCOUNT (EXCLUSIVE OF SEPARATE ACCOUNT LIABILITIES), PLUS SURPLUS AS SET FORTH IN THE NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS ANNUAL STATEMENT FILED WITH THE STATE OF DOMICILE OF THE INSURER, IN ACCORDANCE WITH PROHIBITED TRANSACTION CLASS EXEMPTION 95-60, AND THE OTHER APPLICABLE CONDITIONS OF SUCH EXEMPTION ARE OTHERWISE SATISFIED;

(6) TO THE EXTENT PURCHASE IS MADE BY AN IN-HOUSE ASSET MANAGER WITHIN THE MEANING OF PART IV(A) OF PROHIBITED TRANSACTION CLASS EXEMPTION 96-23, SUCH MANAGER HAS MADE OR PROPERLY AUTHORIZED THE DECISION FOR SUCH PLAN TO PURCHASE THIS SECURITY, UNDER CIRCUMSTANCES SUCH THAT PROHIBITED TRANSACTION CLASS EXEMPTION 96-23 IS APPLICABLE TO THE PURCHASE AND HOLDING OF THIS SECURITY; OR

(7) TO THE EXTENT SUCH PURCHASE WILL NOT OTHERWISE GIVE RISE TO A TRANSACTION DESCRIBED IN SECTION 406 OR SECTION 4975(C)(1) OF THE CODE FOR WHICH A STATUTORY OR ADMINISTRATIVE EXEMPTION IS UNAVAILABLE.

EMCORE CORPORATION

CUSIP: 290846 AA2 R-1

5% CONVERTIBLE SUBORDINATED NOTES DUE 2006

EMCORE Corporation, a New Jersey corporation (the "Company", which term shall include any successor corporation under the Indenture referred to on the reverse hereof), promises to pay to Cede & Co., or registered assigns, the principal sum of One Hundred Seventy-Five Million Dollars ($175,000,000) on May 15, 2006 or such greater or lesser amount as is indicated on the Schedule of Exchanges of Notes on the other side of this Note.

Interest Payment Dates: May 15 and November 15

Record Dates: May 1 and November 1

This Note is convertible as specified on the other side of this Note. Additional provisions of this Note are set forth on the other side of this Note.

IN WITNESS WHEREOF, the Company has caused this instrument to be duly executed.

EMCORE Corporation

By: /s/ Howard Brodie

Name: Howard Brodie
Title: Vice President

Attest:

By: /s/ Michael O'Sullivan

Name: Michael O'Sullivan
Title: Assistant General Counsel

Dated: May 7, 2001

Trustee's Certificate of Authentication: This is one of the Notes referred to in the within-mentioned Indenture.

WILMINGTON TRUST COMPANY,
as Trustee

By: /s/ James D. Nesci

Name: James D. Nesci
Title: Authorized Signer

[REVERSE SIDE OF SECURITY]

EMCORE CORPORATION
5% CONVERTIBLE SUBORDINATED NOTES DUE 2006

1. INTEREST

EMCORE Corporation, a New Jersey corporation (the "Company", which term shall include any successor corporation under the Indenture hereinafter referred to), promises to pay interest on the principal amount of this Note at the rate of 5% per annum. The Company shall pay interest semiannually on May 15 and November 15 of each year, commencing November 15, 2001, unless such date is not a business day, in which case, we shall pay interest on the next succeeding business day and such payment shall be deemed to have been paid on such interest payment date and no interest shall accrue during the additional period of time. Interest on the Notes shall accrue from the most recent date to which interest has been paid or, if no interest has been paid, from May 7, 2001; provided, however, that if there is not an existing default in the payment of interest and if this Note is authenticated between a record date referred to on the face hereof and the next succeeding interest payment date, interest shall accrue from such interest payment date. Interest will be computed on the basis of a 360-day year of twelve 30-day months. Any reference herein to interest accrued or payable as of any date shall include any Additional Interest accrued or payable on such date as provided in the Registration Rights Agreement.

2. METHOD OF PAYMENT

The Company shall pay interest on this Note (except defaulted interest) to the person who is the Holder of this Note at the close of business on May 1 or November 1, as the case may be, next preceding the related interest payment date. The Holder must surrender this Note to a Paying Agent to collect payment of principal. The Company will pay principal and interest in money of the United States that at the time of payment is legal tender for payment of public and private debts. The Company may, however, pay principal and interest in respect of any Definitive Note by check or wire payable in such money; provided, however, that a Holder with an aggregate principal amount in excess of $2,000,000 will be paid by wire transfer in immediately available funds at the election of such Holder. The Company may mail an interest check to the Holder's registered address. Notwithstanding the foregoing, so long as this Note is

registered in the name of a Depositary or its nominee, all payments hereon shall be made by wire transfer of immediately available funds to the account of the Depositary or its nominee.

3. PAYING AGENT, REGISTRAR AND CONVERSION AGENT

Initially, Wilmington Trust Company, (the "Trustee," which term shall include any successor trustee under the Indenture hereinafter referred to) will act as Paying Agent, Registrar and Conversion Agent. The Company may change any Paying Agent, Registrar or Conversion Agent without notice to the Holder. The Company or any of its Subsidiaries may, subject to certain limitations set forth in the Indenture, act as Paying Agent or Registrar.

4. INDENTURE, LIMITATIONS

This Note is one of a duly authorized issue of Notes of the Company designated as its 5% Convertible Subordinated Notes due 2006 (the "Notes"), issued under an Indenture dated as of May 7, 2001 (together with any supplemental indentures thereto, the "Indenture"), between the Company and

the Trustee. The terms of this Note include those stated in the Indenture and those required by or made part of the Indenture by reference to the Trust Indenture Act of 1939, as amended, as in effect on the date of the Indenture. This Note is subject to all such terms, and the Holder of this Note is referred to the Indenture and said Act for a statement of them. All capitalized terms used but not defined herein shall have the meaning ascribed to such term in the Indenture.

The Notes are subordinated unsecured obligations of the Company limited to $175,000,000 aggregate principal amount, subject to Section 2.2 of the Indenture. The Indenture does not limit other debt of the Company, secured or unsecured, including Senior Indebtedness.

5. PROVISIONAL AND OPTIONAL REDEMPTION

The Notes may be redeemed at the election of the Company, as a whole or in part from time to time, at any time prior to May 20, 2004 (a "PROVISIONAL REDEMPTION"), upon at least 20 and not more than 60 days' notice by mail to the Holders of the Notes at a redemption price equal to $1,000 per $1,000 principal amount of the Notes redeemed plus accrued and unpaid interest, if any (such amount, together with the Make-Whole Payment described below, the "PROVISIONAL REDEMPTION PRICE"), to but excluding the date of redemption (the "PROVISIONAL REDEMPTION DATE") if (1) the Closing Sale Price of the Common Stock has exceeded 150% of the Conversion Price for at least 20 Trading Days within a period of any 30 consecutive Trading Days ending on the Trading Day prior to the date of mailing of the notice of Provisional Redemption (the "NOTICE DATE"), and (2) a shelf registration statement covering resales of the Notes and the Common Stock issuable upon conversion thereof is effective and available for use and is expected to remain effective and available for use for the 30 days following the Provisional Redemption Date unless registration is no longer required.

Upon any such Provisional Redemption, the Company, shall make an additional payment, at its option, in cash or Common Stock or a combination of cash and Common Stock (the "MAKE-WHOLE PAYMENT") with respect to the Notes called for redemption to holders on the Notice Date in an amount equal to $150.00 per $1,000 principal amount of the Notes, less the amount of any interest actually paid (including, if the Provisional Redemption Date occurs after a record date but before an interest payment date, any interest paid or payable in connection with such interest payment date) on such Notes prior to the Provisional Redemption Date. Payments made in Common Stock will be valued at 97% of the average closing sales prices of Common Stock for the five Trading Days ending on the day prior to the Redemption Date. The Company shall make the Make-Whole Payment on all Notes called for Provisional Redemption, including those Notes converted into Common Stock between the Notice Date and the Provisional Redemption Date.

Except as set forth above, the Notes are subject to redemption, at any time on or after May 20, 2004, on at least 20 days and no more than 60 days notice, in whole or in part, at the election of the Company. The Redemption Prices (expressed as percentages of the principal amount) are as follows for Notes redeemed during the periods set forth below:

Period	Redemption Price
May 20, 2004 through May 14, 2005.....	101.25%
May 15, 2005 and thereafter.....	100.00%

in each case together with accrued interest up to but not including the Redemption Date; provided that if the redemption date is an interest payment date, interest will be payable to the Holders in whose names the Notes are registered at the close of business on the relevant record dates.

6. NOTICE OF REDEMPTION

Notice of redemption will be mailed by first-class mail at least 20 days but not more than 60 days before the Redemption Date to each Holder of Notes to be redeemed at its registered address. Notes in denominations larger than $1,000 may be redeemed in part, but only in whole multiples of $1,000. On and after the Redemption Date, subject to the deposit with the Paying Agent of funds sufficient to pay the Redemption Price plus accrued interest, if any, accrued to, but not including, the Redemption Date, interest shall cease to accrue on Notes or portions of them called for redemption.

7. PURCHASE OF NOTES AT OPTION OF HOLDER UPON A CHANGE IN CONTROL

At the option of the Holder and subject to the terms and conditions of the Indenture, the Company shall become obligated to purchase all or any part specified by the Holder (so long as the principal amount of such part is $1,000 or an integral multiple of $1,000 in excess thereof) of the Notes held by such Holder on the date that is 30 Business Days after the occurrence of a Change in Control, at a purchase price equal to 100% of the principal amount thereof together with accrued interest up to, but excluding, the Change in Control Purchase Date. The Holder shall have the right to withdraw any Change in Control Purchase Notice (in whole or in a portion thereof that is $1,000 or an integral multiple of $1,000 in excess thereof) at any time prior to the close of business on the Business Day next preceding the Change in Control Purchase Date by delivering a written notice of withdrawal to the Paying Agent in accordance with the terms of the Indenture.

8. CONVERSION

A Holder of a Note may convert the principal amount of such Note (or any portion thereof equal to $1,000 or any integral multiple of $1,000 in excess thereof) into shares of Common Stock at any time prior to the close of business on May 15, 2006; provided, however, that if the Note is called for redemption or subject to purchase upon a Change in Control, the conversion right will terminate at the close of business on the Business Day immediately preceding the redemption date or the Change in Control Purchase Date, as the case may be, for such Note or such earlier date as the Holder presents such Note for redemption or purchase (unless the Company shall default in making the redemption payment or Change in Control Purchase Price, as the case may be, when due, in which case the conversion right shall terminate at the close of business on the date such default is cured and such Note is redeemed or purchased).

The initial Conversion Price is $48.7629 per share, subject to adjustment under certain circumstances. The number of shares of Common Stock issuable upon conversion of a Note is determined by dividing the principal amount of the Note or portion thereof converted by the Conversion Price in effect on the Conversion Date. No fractional shares will be issued upon conversion; in lieu thereof, an amount will be paid in cash based upon the closing price (as defined in the Indenture) of the Common Stock on the Trading Day immediately prior to the Conversion Date.

To convert a Note, a Holder must (a) complete and manually sign the conversion notice set forth below and deliver such notice to a Conversion Agent, (b) surrender the Note to a Conversion Agent, (c) furnish appropriate endorsements and transfer documents if required by a Registrar or a

Conversion Agent, and (d) pay any transfer or similar tax, if required. Notes so surrendered for conversion (in whole or in part) during the period from the close of business on any regular record date to the opening of business on the next succeeding interest payment date (excluding Notes or portions thereof called for redemption or subject to purchase upon a Change in Control on a Redemption Date or Change in Control Purchase Date, as the case may be, during the period beginning at the close of business on a regular record date and ending at the opening of business on the first Business Day after the next succeeding interest payment date, or if such interest payment date is not a Business Day, the second such Business Day) shall also be accompanied by payment in funds acceptable to the Company of an amount equal to the interest payable on such interest payment date on the principal amount of such Note then being converted, and such interest shall be payable to such registered Holder notwithstanding the conversion of such Note, subject to the provisions of this Indenture relating to the payment of defaulted interest by the Company. If the

Company defaults in the payment of interest payable on such interest payment date, the Company shall promptly repay such funds to such Holder. A Holder may convert a portion of a Note equal to $1,000 or any integral multiple thereof.

A Note in respect of which a Holder had delivered a Change in Control Purchase Notice exercising the option of such Holder to require the Company to purchase such Note may be converted only if the Change in Control Purchase Notice is withdrawn in accordance with the terms of the Indenture.

9. SUBORDINATION

The indebtedness evidenced by the Notes is, to the extent and in the manner provided in the Indenture, subordinate and junior in right of payment to the prior payment in full in cash of all Senior Indebtedness. Any Holder by accepting this Note agrees to and shall be bound by such subordination provisions and authorizes the Trustee to give them effect. In addition to all other rights of Senior Indebtedness described in the Indenture, the Senior Indebtedness shall continue to be Senior Indebtedness and entitled to the benefits of the subordination provisions irrespective of any amendment, modification or waiver of any terms of any instrument relating to the Senior Indebtedness or any extension or renewal of the Senior Indebtedness.

10. DENOMINATIONS, TRANSFER, EXCHANGE

The Notes are in registered form without coupons in denominations of $1,000 and integral multiples of $1,000. A Holder may register the transfer of or exchange Notes in accordance with the Indenture. The Registrar may require a Holder, among other things, to furnish appropriate endorsements and transfer documents and to pay any taxes or other governmental charges that may be imposed in relation thereto by law or permitted by the Indenture.

11. PERSONS DEEMED OWNERS

The Holder of a Note may be treated as the owner of it for all purposes.

12. UNCLAIMED MONEY

If money for the payment of principal or interest remains unclaimed for two years, the Trustee or Paying Agent will pay the money back to the Company at its written request. After that, Holders entitled to money must look to the Company for payment.

13. AMENDMENT, SUPPLEMENT AND WAIVER

Subject to certain exceptions, the Indenture or the Notes may be amended or supplemented with the consent of the Holders of at least a majority in principal amount of the Notes then outstanding, and an existing default or Event of Default and its consequence or compliance with any provision of the Indenture or the Notes may be waived in a particular instance with the consent of the Holders of a majority in principal amount of the Notes then outstanding. Without the consent of or notice to any Holder, the Company and the Trustee may amend or supplement the Indenture or the Notes to, among other things, cure any ambiguity, defect or inconsistency or make any other change that does not adversely affect the rights of any Holder.

14. SUCCESSOR CORPORATION

When a successor corporation assumes all the obligations of its predecessor under the Notes and the Indenture in accordance with the terms and conditions of the Indenture, the predecessor corporation will (except in certain circumstances specified in the Indenture) be released from those obligations.

15. DEFAULTS AND REMEDIES

Under the Indenture, an Event of Default includes: (i) default for 30 days in payment of any interest on any Notes; (ii) default in payment of any principal (including, without limitation, any premium, if any) on the Notes when due; (iii) failure by the Company for 60 days after notice to it to comply with any of its other agreements contained in the Indenture or the Notes; (iv) we fail to comply with any of the provisions of Section 6.09 of the Indenture; (v) we fail to provide timely notice of a change in control; and (vi) certain events of bankruptcy, insolvency or reorganization of the Company. If an Event of Default (other than as a result of certain events of bankruptcy, insolvency or reorganization of the Company) occurs and is continuing, the Trustee or the Holders of at least 25% in principal amount of the Notes then outstanding may declare all unpaid principal to the date of acceleration on the Notes then outstanding to be due and payable immediately, all as and to the extent provided

in the Indenture. If an Event of Default occurs as a result of certain events of bankruptcy, insolvency or reorganization of the Company, unpaid principal of the Notes then outstanding shall become due and payable immediately without any declaration or other act on the part of the Trustee or any Holder, all as and to the extent provided in the Indenture. Holders may not enforce the Indenture or the Notes except as provided in the Indenture. The Trustee may require indemnity satisfactory to it before it enforces the Indenture or the Notes. Subject to certain limitations, Holders of a majority in principal amount of the Notes then outstanding may direct the Trustee in its exercise of any trust or power. The Trustee may withhold from Holders notice of any continuing default (except a default in payment of principal or interest) if it determines that withholding notice is in their interests. The Company is required to file periodic reports with the Trustee as to the absence of default.

16. TRUSTEE DEALINGS WITH THE COMPANY

Wilmington Trust Company, the Trustee under the Indenture, in its individual or any other capacity, may make loans to, accept deposits from and perform services for the Company or an Affiliate of the Company, and may otherwise deal with the Company or an Affiliate of the Company, as if it were not the Trustee.

17. NO RECOURSE AGAINST OTHERS

A director, officer, employee or shareholder, as such, of the Company shall not have any liability for any obligations of the Company under the Notes or the Indenture nor for any claim based on, in respect of or by reason of such obligations or their creation. The Holder of this Note by accepting this Note waives and releases all such liability. The waiver and release are part of the consideration for the issuance of this Note.

18. AUTHENTICATION

This Note shall not be valid until the Trustee or an authenticating agent manually signs the certificate of authentication on the other side of this Note.

19. ABBREVIATIONS AND DEFINITIONS

Customary abbreviations may be used in the name of the Holder or an assignee, such as: TEN COM (= tenants in common), TEN ENT (= tenants by the entireties), JT TEN (= joint tenants with right of survivorship and not as tenants in common), CUST (= Custodian) and UGMA (= Uniform Gifts to Minors Act).

All terms defined in the Indenture and used in this Note but not specifically defined herein are defined in the Indenture and are used herein as so defined.

20. INDENTURE TO CONTROL; GOVERNING LAW

In the case of any conflict between the provisions of this Note and the Indenture, the provisions of the Indenture shall control. This Note shall be governed by, and construed in accordance with, the laws of the State of New York, without regard to principles of conflicts of law.

The Company will furnish to any Holder, upon written request and without charge, a copy of the Indenture. Requests may be made to: EMCORE Corporation, 145 Belmont Drive, Somerset, New Jersey 08873, Attention: Chief Financial Officer.

ASSIGNMENT FORM

To assign this Note, fill in the form below:

I or we assign and transfer this Note to

- ---

(Insert assignee's soc. sec. or tax I.D. no.)

- ---

- ---

- ---

- ---

(Print or type assignee's name, address and zip code)

and irrevocably appoint

- ---

agent to transfer this Note on the books of the Company. The agent may substitute another to act for him or her.

Your Signature:

Date:
_____ _____
(Sign exactly as your name appears on the other side of this Note)

*Signature guaranteed by:

By:
_____

* The signature must be guaranteed by an institution which is a member of one of the following recognized signature guaranty programs: (i) the Securities Transfer Agent Medallion Program (STAMP); (ii) the New York Stock Exchange Medallion Program (MSP); (iii) the Stock Exchange Medallion Program (SEMP); or (iv) such other guaranty program acceptable to the Trustee.

CONVERSION NOTICE

To convert this Note into Common Stock of the Company, check the box: [ ]

To convert only part of this Note, state the principal amount to be converted (must be $1,000 or a multiple of $1,000):
$_____ .

If you want the stock certificate made out in another person's name, fill in the form below:

- ---

(Insert assignee's soc. sec. or tax I.D. no.)

- ---

- ---

- ---

- ---

(Print or type assignee's name, address and zip code)

Your Signature:

Date:
_____ _____
(Sign exactly as your name appears on the other side of this Note)

*Signature guaranteed by:

By:
---

* The signature must be guaranteed by an institution which is a member of one of the following recognized signature guaranty programs: (i) the Securities Transfer Agent Medallion Program (STAMP); (ii) the New York Stock Exchange Medallion Program (MSP); (iii) the Stock Exchange Medallion Program (SEMP); or (iv) such other guaranty program acceptable to the Trustee.

OPTION TO ELECT REPURCHASE UPON A CHANGE OF CONTROL

To: EMCORE Corporation

The undersigned registered owner of this Note hereby irrevocably acknowledges receipt of a notice from EMCORE Corporation (the "Company") as to the occurrence of a Change in Control with respect to the Company and requests and instructs the Company to redeem the entire principal amount of this Note, or the portion thereof (which is $1,000 or an integral multiple thereof) below designated, in accordance with the terms of the Indenture referred to in this Note at the Change in Control Purchase Price, together with accrued interest to, but excluding, such date.

Dated:

Signature(s)

Signature(s) must be guaranteed by a qualified guarantor institution with membership in an approved signature guarantee program pursuant to Rule 17Ad-15 under the Securities Exchange Act of 1934.

Signature Guaranty

Principal amount to be redeemed
(in an integral multiple of $1,000, if less than all):

- ---

NOTICE: The signature to the foregoing Election must correspond to the Name as written upon the face of this Note in every particular, without alteration or any change whatsoever.

SCHEDULE OF EXCHANGES OF NOTES

The following exchanges, redemptions, repurchases or conversions of a part of this global Note have been made:

<TABLE>
<CAPTION>

Decrease Date of Exchange (or Increase)	Authorized Signatory of Custodian	Amount of Decrease in Principal Amount of this Global Note	Amount of Increase in Principal Amount of this Global Note	Principal Amount of this Global Note Following Such
<S>	<C>	<C>	<C>	

</TABLE>

CERTIFICATE TO BE DELIVERED UPON EXCHANGE OR REGISTRATION
OF TRANSFER OF TRANSFER RESTRICTED SECURITIES

Re: 5% Convertible Subordinated Notes due 2006 (the "Notes") of EMCORE Corporation.

This certificate relates to $_____ principal amount of Notes owned in (check applicable box)

[ ] book-entry or [ ] definitive form by _____ (the "Transferor").

The Transferor has requested a Registrar or the Trustee to exchange or register the transfer of such Notes.

In connection with such request and in respect of each such Note, the Transferor does hereby certify that the Transferor is familiar with transfer restrictions relating to the Notes as provided in Section 2.12 of the Indenture dated as of May 7, 2001 between EMCORE Corporation and Wilmington Trust Company, (the "Indenture"), and the transfer of such Note is being made pursuant to an effective registration statement under the Securities Act of 1933, as amended (the "Securities Act") (check applicable box) or the transfer or exchange, as the case may be, of such Note does not require registration under the Securities Act because (check applicable box):

[ ] Such Note is being transferred pursuant to an effective registration statement under the Securities Act.

[ ] Such Note is being acquired for the Transferor's own account, without transfer.

[ ] Such Note is being transferred to the Company or a Subsidiary (as defined in the Indenture) of the Company.

[ ] Such Note is being transferred to a person the Transferor reasonably believes is a "qualified institutional buyer" (as defined in Rule 144A or any successor provision thereto ("Rule 144A") under the Securities Act) that is purchasing for its own account or for the account of a "qualified institutional buyer", in each case to whom notice has been given that the transfer is being made in reliance on such Rule 144A, and in each case in reliance on Rule 144A.

[ ] Such Note is being transferred pursuant to and in accordance with Rule 903 or Rule 904 under the Securities Act and, accordingly, the Transferor hereby further certifies that (i) the transfer is not being made to a person in the United States and (x) at the time the buy order was originated, the transferee was outside the United States or such Transferor and any Person acting on its behalf reasonably believed and believes that the transferee was outside the United States or (y) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither such Transferor nor any Person acting on its behalf knows that the transaction was prearranged with a buyer in the United States, (ii) no directed selling efforts have been made in contravention of the requirements of Rule 903(b) or Rule 904(b) of Regulation S under the Securities Act and (iii) the transaction is not part of a plan or scheme to evade the registration requirements of the Securities Act and (iv) if the proposed transfer is being made prior to the expiration of the Restricted Period, the transfer is not being made to a U.S. Person or for the account or benefit of a U.S. Person (other than an Initial Purchaser).

[ ] Such Note is being transferred pursuant to and in compliance with an exemption from the registration requirements under the Securities Act in accordance with Rule 144 (or any successor thereto) ("Rule 144") under the Securities Act.

[ ] Such Note is being transferred pursuant to and in compliance with an exemption from the registration requirements of the Securities Act (other than an exemption referred to above) and as a result of which

such Note will, upon such transfer, cease to be a "restricted security" within the meaning of Rule 144 under the Securities Act.

The Transferor acknowledges and agrees that, if the transferee will

hold any such Notes in the form of beneficial interests in a global Note which is a "restricted security" within the meaning of Rule 144 under the Securities Act, then such transfer can only be made pursuant to Rule 144A under the Securities Act and such transferee must be a "qualified institutional buyer" (as defined in Rule 144A).

Date:
     ---------- ----------
(Insert Name of Transferor)

Exhibit 4.3

- ---
- ---

$20,000,000

AMENDED AND RESTATED

REVOLVING LOAN AND SECURITY AGREEMENT

By and Between

EMCORE CORPORATION

And

FIRST UNION NATIONAL BANK

Dated as of March 1, 2001

- ---
- ---

TABLE OF CONTENTS

AMENDED AND RESTATED
REVOLVING LOAN AND SECURITY AGREEMENT

This AMENDED AND RESTATED REVOLVING LOAN AND SECURITY AGREEMENT dated as of March 1, 2001 is between EMCORE Corporation, a corporation organized under the laws of the State of New Jersey (the "Borrower"), with its principal place of business at 145 Belmont Drive, Somerset, New Jersey 08873 and First Union National Bank (the "Bank"), having an office at 1889 Highway 27, Edison, NJ 08817.

BACKGROUND

A. The Borrower and the Bank are parties to a certain Revolving Loan and Security Agreement, dated as of March 31, 1997, as amended by a certain Consent and Amendment Agreement, dated as of December 5, 1997 (the "First Amendment"), as further modified pursuant to a certain Extension Letter dated

September 29, 1998 issued by the Bank and accepted by the Borrower (the "First Extension Letter"), as further amended pursuant to a certain Second Amendment to Revolving Loan and Security Agreement dated as of November 30, 1998 (the "Second Amendment"), as further amended pursuant to a certain Waiver and Amendment Letter Agreement dated as March 8, 1999 (the "First Amendment Letter"), as further amended pursuant to a certain Acknowledgment, Consent and Amendment Letter dated as of May 26, 1999 (the "Second Amendment Letter") and as further modified pursuant to a certain letter of the Bank dated September 22, 1999 (the "Second Extension Letter") and as further amended pursuant to a certain Third Amendment to Revolving Loan and Security Agreement dated as December 1, 1999 (the "Third Amendment"). Said loan agreement, as amended by the First Amendment, the First Extension Letter, the Second Amendment, First Amendment Letter, the Second Amendment Letter, the Second Extension Letter and the Third Amendment is hereinafter referred to as the "Existing Agreement".

B. The Borrower has requested an increase in the Maximum Credit available under the Existing Agreement to an amount not to exceed $20,000,000, together with certain other modifications to the terms and conditions set forth therein. Furthermore, for administrative convenience and to assure proper reflection of the terms and conditions of all prior amendments and modifications to the Existing Agreement, as well as the above requested increase and modifications, the parties desire to amend and restate the terms and conditions of the Existing Agreement in their entirety with the terms and conditions set forth herein.

NOW THEREFORE, in consideration of the mutual promises contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Bank and Borrower hereby agree that the Existing Agreement shall be amended and restated in its entirety to read as follows:

SECTION 1. DEFINITIONS

When used herein, the following terms shall have the following meanings (such definitions to be equally applicable to both singular and plural forms):

"Accounts" means all existing and hereafter arising or acquired accounts, accounts receivable, notes, drafts, acceptances, chattel paper, instruments, documents and other forms of obligations held by or payable to Borrower relating to or arising from the sale of Inventory or the rendering of services by Borrower, including, without limitation, the right to payment of interest or finance charges, all rights of Borrower as an unpaid vendor, and all pledged assets, credit insurance, guaranties, letters of credit and security interests relating thereto. This definition includes, without limitation, the definition of an "Account" as set forth in the Uniform Commercial Code.

"Affiliate" of any Person means any other Person who, directly or indirectly, controls or is controlled by or is under common control with such Person. A Person shall be deemed to be "controlled by" any other Person who possesses, directly or indirectly, power: (a) to vote 10% or more of the securities having ordinary voting power for the election of directors of such Person; or (b) to direct or cause the direction of the management and policies of such Person, whether by contract or otherwise.

"Agreement" means this Amended and Restated Revolving Loan and Security Agreement as the same may from time to time be amended, modified, supplemented, renewed or restated.

"ASI" means Analytical Solutions, Inc., a New Mexico corporation and a wholly-owned Subsidiary of the Borrower.

"Available Commitment" means, at any time, the Revolving Loan Commitment minus the sum of (i) the aggregate principal amount of Revolving Credit Loans then outstanding plus (ii) the Letter of Credit Obligations.

"Borrowing Base" means at any time the aggregate of:

(i) 85% of the value of the Net Amount of Eligible Accounts; plus

(ii) 25% of the value of Eligible Inventory; plus

(iii) 30% of the net book value of the Borrower's production Equipment (excluding, however, any Consigned Equipment); plus

(iv) 25% of the net book value of the real property and improvements encumbered by the NM Facility Mortgage or any other mortgage of the Borrower granting to the Bank a first priority mortgage lien and security interest in and to the real property and improvements encumbered thereby, in each case to secure the Obligations.

For purposes of determining the Inventory component of the Borrowing Base, the

term "value" of Eligible Inventory shall mean the lower of cost or fair market value determined by the Bank in its sole discretion, with cost determined on a first in, first out basis.

"Borrowing Base Certificate" shall mean a certificate substantially in the form of Exhibit 10.1(f) hereto.

"Business Day" means any day on which the Bank is open for business.

"Borrowing Notice" means a written, telecopied or telephonic notice to the Bank by the Borrower in form and substance satisfactory to the Bank.

"Capital Expenditures" means any amounts paid or incurred in connection with the purchase of plant, machinery, equipment or similar expenditures (including any lease of any of the foregoing) which would be required to be capitalized and shown on a balance sheet in accordance with GAAP.

"Capitalized Lease" means any lease of property, real or personal, the obligations of the lessee in respect of which are required in accordance with GAAP to be capitalized on a balance sheet of the lessee.

"Cash Equivalents and Marketable Securities" means (i) direct obligations of, or obligations unconditionally guaranteed by, the United States or any agency thereof maturing in less than one year from the date of purchase; (ii) commercial paper bearing one of the two highest investment grades by Moody's Investor's Service, Inc. and/or Standard and Poors Rating Service, a division of McGraw-Hill Companies, Inc. (iii) certificates of deposit due within one year from the date of purchase, issued by any commercial bank, organized and doing business under the laws of the United States or any state thereof having capital surplus and undivided profits aggregating more than $100,000,000 and otherwise meeting the applicable minimum risk capital levels required by the applicable bank regulatory authority; and (iv) investments in money market funds maintained by the Bank or any other entities reasonably satisfactory to the Bank.

"Code" means the Internal Revenue Code of 1986, as amended from time to time.

"Collateral" is defined in Section 7, as supplemented by Section 7.5.

"Commitment Expiration Date" means January 31, 2003.

"Consigned Equipment" means the Equipment of the Borrower that is, from time to time, subject to the consignment arrangements described in Schedule 8.5.1, or any other Equipment of the Borrower held from time to time by third parties under similar arrangements.

"Contingent Obligation" means, as to any Person, any obligation of such Person guaranteeing or in effect guaranteeing any Indebtedness, lease, dividend or other obligation (the "primary obligations") of any other Person

(the "primary obligor") in any manner, whether directly or indirectly, including, without limitation, any obligation of such Person, whether or not contingent (a) to purchase any such primary obligation or any property constituting direct or indirect security therefor, (b) to advance or supply funds (i) for the purchase or payment of any such primary obligation or (ii) to maintain working capital or equity capital of the primary obligor or otherwise to maintain the net worth or solvency of the primary obligor or to permit the primary obligor to meet financial covenants, (c) to purchase property, securities or services primarily for the purpose of assuring the owner of any such primary obligation of the ability of the primary obligor to make payment of such primary obligation or (d) otherwise to assure or hold harmless the owner of any such primary obligation against loss in respect thereof; provided, however, that the term Contingent Obligation shall not include endorsements of instruments for deposit or collection in the ordinary course of business. The amount of any Contingent Obligation shall be deemed to be an amount equal to the stated or determinable amount of the primary obligation in respect of which such Contingent Obligation is made or, if not stated or determinable, the maximum reasonably anticipated liability in respect thereof as determined by the Borrower in good faith.

"Core EBITDA" means, with respect to the Borrower, EBITDA, exclusive of any gains or losses attributable to operations of any Unconsolidated Affiliates.

"Default Rate" means a per annum rate of interest equal to the Prime Rate plus an additional five percent (5%) per annum.

"Dollars" and "$" means dollars in lawful currency of the United States of America.

"EBITDA" means, with respect to the Borrower, for any period, the sum

of (i) Net Income, (ii) Interest Expense, (iii) depreciation and amortization, and (iv) provisions for Federal, state and local income taxes of the Borrower based on income, computed in accordance with GAAP on a consolidated basis.

"Effective Net Worth" means, with respect to the Borrower, total assets minus total liabilities, in each case determined in accordance with GAAP on a consolidated basis.

"Eligible Accounts" means, without limiting the Bank's sole discretion to determine Eligible Accounts, those Accounts created by the Borrower or any Guarantor:

(i) which are genuine and not fraudulent;

(ii) which arise from undisputed, bona fide sales of goods and/or services in the ordinary course of business completed in accordance with the terms and provisions contained in any documents related thereto;

(iii) as to which the amounts of such Accounts shown on any schedule of Accounts provided to the Bank are actually and absolutely owing to Borrower or the Guarantor, are not contingent for any reason and have not remained unpaid for more than 90 days after the invoice date thereof;

(iv) which do not arise from sales on consignment, guaranteed sale or other terms under which payment by the Account debtor may be conditional;

(v) which, in the case of Accounts where the Account debtor is a non-resident of the United States or Canada, are secured by a letter of credit issued by a bank that is reasonably acceptable to Bank, provided, however, that Accounts where the Account debtor is any one of Hakuto Co., Ltd., Hakuto Enterprises, Ltd., a wholly-owned subsidiary of Hakuto Co., Ltd., Siemens AG, D.I. Systems, Philips AG, Thomson, L.M. Ericsson AB, Samsung Co., L.G. Semiconductor Corporation, Hyundai Electronics, Daewoo Co. or Azea, Brown and Bavari (ABB) need not be secured by a letter of credit;

(vi) which do not consist of "bill and hold" invoices or against which deposits are held by the Account debtor thereunder;

(vii) with respect to which there are no set-offs, counterclaims or disputes existing and there are no facts, events or occurrences which in any manner would impair the validity or enforceability or collectibility of such Accounts or reduce the amount payable or delay payment thereunder;

(viii) as to which goods giving rise thereto are not, and were not, at the time of the sale thereof, subject to any Liens except those permitted by the Bank under this Agreement;

(ix) which are not Accounts with respect to which the Account debtor is:

i. an officer, employer or agent of the Borrower;

ii. the United States or any of its departments or instrumentalities unless the Assignment of Claims Act has been complied with;

iii. a Subsidiary or an Affiliate of the Borrower;

iv. a division of the Borrower; or

v. an Unconsolidated Affiliate;

(x) as to which there are no proceedings or actions which are threatened or pending against the Account debtor of any such Account which is reasonably likely to result in any material adverse change in the Account debtor's financial condition;

(xi) which are owed by Account debtors deemed creditworthy and acceptable at all times by the Bank in exercise of its reasonable discretion; and

(xii) which otherwise constitute Collateral acceptable for lending purposes in the sole discretion of the Bank.

"Eligible Inventory" means Inventory located at Borrower's facilities at 394 Elizabeth Avenue, Somerset, New Jersey, and the NM Facility and

comprising only of raw materials. Specifically excluded from the term "Eligible Inventory" shall be work-in-process, finished goods, supplies, packing materials, Inventory in transit, Inventory located in any location other than the locations specified above (unless the Bank is satisfied it has a perfected first priority security interest in such Inventory).

"Environmental Law" is defined in Section 8.8.

"ERISA" shall mean the Employee Retirement Income Security Act of 1974, as amended from time to time.

"ERISA Affiliate" means each trade or business (whether or not incorporated) which together with the Borrower would be deemed to be a single employer under Section 414 of the Code.

"Equipment" means all equipment as such term in defined in the Uniform Commercial Code and all accessories and parts that become part of the equipment by accession, and all supplies used or to be used in connection therewith.

"Event of Default" means any of the events described in Section 11.1 of this Agreement.

"Existing Agreement" is defined in the Background Section of this Agreement.

"Fiscal Year" means the fiscal year of the Borrower commencing October 1 of any calendar year and ending September 30 of the immediately succeeding calendar year.

"GAAP" means generally accepted accounting principles in the United States of America in effect from time to time, applied on a consistent basis.

"Governmental Authority" means any sovereign state, nation or government, any state or other political subdivision thereof and any authority exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to government.

"Guarantor" shall be the collective reference to MODE, ASI and TSI.

"Guaranty" shall be the collective reference to the Guaranty dated December 3, 1997 made by MODE and the Guaranty of ASI and TSI dated as of even date herewith, in each case in favor of the Bank with respect to the Obligations of the Borrower to the Bank, as the same may be affirmed, modified, amended, or supplemented from time to time.

"Imputed Warrant Interest Expense" means, for any period of determination, the non-cash interest expense of the Borrower in respect of the Warrants determined in accordance with GAAP.

"Indebtedness" of any Person, means, at a particular date, the sum (without duplication and in conformity with GAAP) at such date of (a) all indebtedness of such Person for borrowed money or for the deferred purchase price of property or services (including, without limitation, all notes payable and all obligations evidenced by bonds, debentures, notes or other similar instruments but excluding trade payables incurred in the ordinary course of business), (b) obligations with respect to any installment sale or conditional sale agreement or title retention agreement, (c) indebtedness arising under acceptance facilities, (d) unpaid reimbursement obligations arising in connection with surety, performance or other similar bonds and in connection with standby letters of credit issued in lieu of such bonds, (e) the outstanding

amount of all other letters of credit (other than those referred to in clause (d)) issued for the account of such Person and, without duplication, all unpaid reimbursement obligations thereunder, (f) any lease obligation which is capitalized on a balance sheet of the Borrower prepared in accordance with GAAP, (g) net liabilities of such Person under interest rate cap agreements, interest rate swap agreements, foreign currency exchange agreements and other hedging agreements or arrangements, (h) Contingent Obligations of such Person and (h) withdrawal liabilities of such Person or any Commonly Controlled Group (as such term is defined in the Code) under a Plan.

"Interest Expense" means, for any period, the total interest expense for such period (including, without limitation, that attributable to Capitalized Leases in accordance with GAAP) of Borrower with respect to all outstanding Indebtedness of Borrower including Imputed Warrant Interest Expense.

"Inventory" means all inventory of Borrower of every kind and description, including, without limitation, all merchandise, raw materials, parts, supplies, work-in-process and finished goods, together with all accessions, attachments and other additions to, substitute for, replacements for, improvements to and returns of such inventory, all accounts arising from

the disposition of inventory, containers, packing, packaging, shipping and similar materials relating thereto.

"Lending Rate" means, with respect to each Revolving Loan, the lower of (A) Prime Rate and (B) LIBOR Market Index Rate plus 150 basis points (1.50%). Changes in the rate of interest charged hereunder shall become effective as of the opening of business on the day on which such change in the Prime Rate or the LIBOR Market Index Rate, as the case may be, is established.

"Letter(s) of Credit" means the one or more irrevocable standby letters of credit issued from time to time by Bank at the request and for the account of the Borrower in accordance with the terms hereof.

"Letter of Credit Agreement" means the Bank's standard form of Application and Agreement for Irrevocable Standby Letters of Credit, as the same may change from time to time.

"Letter of Credit Obligations" means, without duplication, the aggregated stated amount of all Letters of Credit outstanding at any time and all obligations of the Borrower to reimburse the Bank for any payments by the Bank under any Letters of Credit in each case, at the time of determination of said obligations.

"LIBOR Market Index Rate" means for any day, the rate for one (1) month U.S. dollar deposits as reported on Telerate page 3750 as of 11:00 a.m., London time, on such day, or if such day is not a London business day, then the immediately preceding London business day (or if not so reported, then as determined by Bank from another recognized source or interbank quotation).

"Lien" means any mortgage, pledge, security interest, hypothecation, assignment, deposit arrangement, encumbrance, or preference, priority or other security agreement or preferential arrangement of any kind or nature whatsoever (including, without limitation, any conditional sale or other title retention agreement, any financing lease having substantially the same economic effect as any of the foregoing, and the filing of any financing statement under the Uniform Commercial Code or comparable law of any jurisdiction).

"Liquidity" means the sum of cash (in the form of Dollars) and Cash Equivalents and Marketable Securities that is, in all cases, under the absolute dominion and control of the Borrower and not subject to any Lien or any other form of restriction as to use to satisfy the current liabilities of the Borrower.

"Loan Documents" means, collectively, this Agreement, the Revolving Note, each Letter of Credit Agreement, the Guaranty, the Security Agreement, the NM Facility Mortgage, the NM Bond Pledge, and all other documents, instruments and agreements delivered in connection herewith and therewith, as the same from time to time may be amended, renewed, restated, supplemented or otherwise modified.

"Material Adverse Effect" means any event or condition which is likely to have a material adverse effect on the business operations, properties or overall financial condition of the Borrower and its Subsidiaries, taken as a whole, or the ability of the Borrower or any Guarantor to perform or comply with any of their respective obligations under any of the Loan Documents.

"Maximum Credit" is defined in Section 2.1.

"MODE" means MicroOptical Devices, Inc., a Delaware corporation and a wholly-owned Subsidiary of the Borrower.

"Multiemployer Plan" means a multiemployer plan as defined in Section 4001(a)(3) of ERISA contributed to by Borrower or an ERISA Affiliate or to which the Borrower or an ERISA Affiliate has any obligation or liability.

"Net Amount of Eligible Accounts" means the gross amount of Eligible

Accounts less sales, excise or similar taxes, and less returns, discounts, claims, credits and allowances of any nature, at any time issued, owing, granted, outstanding, available or claimed.

"Net Income" for any period means the net income (or net loss) of Borrower for such period, determined in accordance with GAAP on a consolidated basis.

"Net Loss In Unconsolidated Affiliates" means, with respect to the Borrower, for the relevant period the net loss appearing as an expense on an income statement of the Borrower prepared in accordance with GAAP, consistently applied, attributable to its investment in Unconsolidated Affiliates.

"NM Facility" means that certain real property and improvements located in the City of Albuquerque, County of Bernalillo, State of New Mexico,

as more fully described in the NM Facility Mortgage, which is occupied by the Borrower pursuant to a certain long term lease dated June 1, 1998, by and between the Borrower and the City of Albuquerque, New Mexico.

"NM Facility Bond Pledge" means that certain Bond Pledge Agreement, dated as of November 30, 1999, given by EMCORE IRB Company, Inc. in favor of the Bank with respect to the pledge of certain New Mexico taxable industrial revenue bonds issued by the City of Albuquerque, New Mexico in connection with the development of the NM Facility.

"NM Facility Mortgage" means that certain Mortgage and Security Agreement, dated as of November 30, 1999, given by the Borrower in favor of the Bank with respect to the Bank's first priority mortgage lien upon the NM Facility.

"Obligations" means all of Borrower's liabilities, obligations and Indebtedness to the Bank of any and every kind and nature (including, without limitation, any and all reimbursement obligations owing to the Bank in respect of this Agreement, the other Loan Documents, the Revolving Note, overadvances, interest, commitment fees, charges, expenses, attorneys' fees and other sums chargeable to Borrower by the Bank and future advances made to or for the benefit of Borrower), including swap agreements (as defined in 11 U.S.C. ss.101) whether arising hereunder or under the other Loan Documents or otherwise, whether heretofore, now or hereafter owing, arising, due, or payable from Borrower to the Bank and howsoever evidenced, created, incurred, acquired or owing, whether primary, secondary, direct, contingent, fixed, or otherwise, including obligations of performance.

"PBGC" shall mean the Pension Benefit Guaranty Corporation.

"Permitted Encumbrance" is defined in Section 10.5.

"Person" means an individual, partnership, corporation, business trust, joint stock company, trust, unincorporated association, joint venture, Governmental Authority or other entity of whatever nature.

"Plan" shall mean any employee benefit plan as defined in Section 3(3) of ERISA which covers the employees or former employees of the Borrower or an ERISA Affiliate, under which the Borrower or an ERISA Affiliate has any obligation or liability or under which the Borrower or an ERISA Affiliate has made contributions within the preceding five years, other than a Multiemployer Plan.

"Prime Rate" means, on any date and with respect to all Obligations, the rate of interest established by the Bank as its reference rate in making loans, and is not tied to any external rate of interest or index. The rate of interest charged hereunder in respect of the Prime Rate shall change automatically and immediately as of the date of any change in the Prime Rate without notice to the Borrower. The Prime Rate does not reflect the rate of interest charged to any particular class of borrower nor is it necessarily intended to be the lowest rate of interest determined by the Bank in connection with extensions of credit. The Bank may make loans based on rates other than the Prime Rate to any person, and these rates may be higher, lower or equal to the prime rate or other reference rates used by the Bank as the Bank, shall from time to time, in its sole discretion determine.

"Proceeds" means whatever is received when Collateral is sold, exchanged, collected or otherwise disposed of, including, without limitation, insurance proceeds.

"Quick Ratio" means with respect of the Borrower, for any period of determination the ratio of (i) the sum of the Liquidity plus trade and non-trade receivables (less any bad debt reserves) that are classified as current in accordance with GAAP, whether or not evidenced by a promissory note to (ii) the sum all of the Borrower's liabilities that are classified as current in accordance with GAAP plus the long term portion of any debt due from the Borrower to any of the Borrower's officers, employees, stockholders, Subsidiaries or other Affiliates, which, in each case, are included in the Borrower's current liabilities.

"Related Parties" has the meaning set forth in Section 8.9 hereof.

"Reportable Event" shall mean any event set forth in Section 4043(b) of ERISA or the regulations thereunder.

"Requirement of Law" means as to any Person, the certificate of incorporation and bylaws or other organizational or governing documents of such Person, and any law, treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"Revolving Loan Commitment" means, for the Bank, for the period from and including the date hereof to but excluding the Commitment Expiration Date, $20,000,000.

"Revolving Loan" has the meaning set forth in Section 2.1 hereof.

"Revolving Loan Maturity Date" means the earlier of (i) the day the Loans are accelerated pursuant to Section 11.2, or (ii) the Commitment Expiration Date.

"Revolving Note" is defined in Section 3.1.

"Security Agreement" shall be the collective reference to the Security Agreement dated December 3, 1997 made by the MODE and the Security Agreement dated even date herewith made by ASI and TSI, in each case in favor of the Bank, as the same may be modified, amended or supplemented from time to time.

"Subordinated Debt" means any Indebtedness the terms (including, without limitation, interest rate, equity participation, principal amount, amortization, collateralization, covenants, events of default and subordination and lien priority) of which are in form and substance acceptable to the Bank in its sole discretion, do not affect the rights or Liens granted to the Bank pursuant to this Agreement or any of the other Loan Documents and in respect of which the Bank has received a Subordination Agreement in form and substance satisfactory to the Bank duly executed by the holder of such Indebtedness.

"Subsidiary" means any Person in which more than fifty (50%) percent of the voting power or equity ownership shall, at the time as of which such determination is being made, be owned or controlled directly by Borrower or one or more Subsidiaries.

"TSI" means Training Solutions, Inc., a New Mexico corporation and a wholly-owned Subsidiary of the Borrower.

"Unconsolidated Affiliates" means UMcore LLC, the Borrower's joint venture with Union Miniere Inc., GELcore LLC, the Borrower's joint venture with General Electric Company, and Uniroyal Optoelectronics LLC, the Borrower's joint venture with Uniroyal Technology Corporation, in each case so long as the Borrower's investment in each such joint venture can be accounted for using the equity method of accounting as a result of the Borrower's inability to directly or indirectly control economic and voting interests in said joint ventures.

"Unmatured Event of Default" means any event which, if it continues uncured will, with lapse of time or the giving of notice, or both, constitute an Event of Default.

"Warrants" means the warrants listed on Schedule 1.1 attached hereto.

SECTION 2. TERMS OF REVOLVING LOANS

2.1. Revolving Loan Commitment; Maximum Credit. (a) Subject to the terms and conditions of this Agreement, the Bank agrees (i) to make revolving loans to Borrower (hereinafter collectively referred to as "Revolving Loans" and individually as a "Revolving Loan") and (ii) issue Letters of Credit, up to the Revolving Loan Commitment at any time during the period commencing the date hereof to, but excluding, the Revolving Loan Maturity Date, in such amounts as Borrower may from time to time request; provided, however, that the sum of the aggregate outstanding principal amount of the Revolving Loans, plus the Letter of Credit Obligations, when added to any requested Revolving Loans or Letter of Credit, as the case may, be shall at no time exceed the lesser of (A) the Available Commitment or (B) the Borrowing Base (the "Maximum Credit"); provided, further that in no event shall the Letter of Credit Obligations, when added to any requested Letter of Credit, exceed at any time $1,000,000. Subject to the terms hereof, the Borrower may borrow, prepay and reborrow until the Revolving Loan Maturity Date when all Revolving Loans shall be due and payable. The Bank has no obligation to make any Revolving Loan or issue any Letter of Credit on or after the Revolving Loan Maturity Date.

(b) Amendment and Restatement of Revolving Loan Commitment Under Existing Agreement. The Revolving Loan Commitment herein provided shall amend and restate the revolving loan commitment set forth in the Existing Agreement. Accordingly, as of the effective date of this Agreement (i) the revolving loan commitment set forth in the Existing Agreement shall be terminated and of no further force and effect, (ii) the revolving loans outstanding under the

Existing Agreement shall be refinanced with Revolving Loans incurred hereunder, and (iii) the obligations of the Borrower with respect to such existing revolving loans evidenced by the Revolving Note issued under the Existing Agreement shall be deemed to be evidenced by the Revolving Note issued hereunder. It is the intention of the parties hereto that the amendment,

restatement and refinancing of the existing revolving loan commitment under the Existing Agreement with the Revolving Loan Commitment herein provided shall be deemed to be a modification of the Borrower's obligations thereunder and not an extinguishment or novation thereof.

2.2. Borrowing and Renewal Procedures. With respect to any proposed Revolving Loan, the Borrower shall deliver a Borrowing Notice to the Bank by 2:00 p.m. on the date of such proposed borrowing. Subject to the satisfaction of the conditions set forth in Sections 2.1 and 2.4, the Bank shall lend to Borrower the amount specified in such Borrowing Notice, provided, however, that each Revolving Loan shall be made only on a Business Day. In the event that any Borrowing Notice is given to the Bank by telephone, such notice must be confirmed by the Borrower via same day facsimile. All Revolving Loans shall be credited to an account of the Borrower maintained by the Bank.

2.3. Borrowing Warranty. Each Borrowing Notice delivered to the Bank pursuant to Section 2.2 shall constitute a warranty and representation to the Bank that, as of the date of such Borrowing Notice and the date of the borrowing proposed in such Borrowing Notice, all of the following are true and correct: (a) the representations and warranties of the Borrower set forth in Section 8 below are true and correct, (b) the covenants of the Borrower set forth in Section 10 below have been complied with and are true and correct, and (c) no Event of Default or Unmatured Event of Default shall have occurred or will result from the Revolving Loan described in or the transaction contemplated by such Borrowing Notice.

2.4. Borrowing Conditions. Notwithstanding anything contained in this Agreement to the contrary, the Bank shall have no obligation to make any Revolving Loan if an Event of Default or Unmatured Event of Default (a) shall exist on the date of such proposed borrowing or (b) shall result from the making of such Revolving Loan.

2.5. Procedures for Letters of Credit.

(A) Issuance of Letters of Credit. Within the Available Commitment, until the Commitment Expiration Date, and provided that no Event of Default shall have occurred and be continuing or would result from the issuance of a Letter of Credit and subject to the limitations of Section 2.1, the Bank may issue Letters of Credit for the account of Borrower on the terms hereinafter set forth. No Letter of Credit shall have a term in excess of 365 days and, in any event, an expiry date beyond the Commitment Expiration Date. Each of the Letters of Credit shall be issued in a form satisfactory to the Bank and pursuant to a Letter of Credit Agreement duly executed by the Borrower. The terms and conditions of the Letter of Credit Agreement(s) are hereby incorporated herein by reference as if fully set forth at length. The Borrower shall pay to the Bank any and all fees imposed by Bank in connection with the issuance of Letters of Credit.

(B) Payments under Letters of Credit and Reimbursement by Borrower. In the event of a drawing under any Letter of Credit and payment by the Bank, the Borrower shall immediately reimburse the Bank therefor, together with any fees in connection therewith, which may be made by a charge against any of the Borrower's accounts with the Bank. If the Borrower shall not so reimburse the Bank as provided above, such failure shall be an Event of Default and the Borrower shall pay to the Bank interest on the amount of such payment from the date of such payment by the Bank or the failure of the Borrower to so reimburse the Bank, as applicable, through and including the date of such reimbursement by the Borrower at the Default Rate.

(C) Letter of Credit Obligations Absolute. The Borrower's obligations to make payments to the Bank in order to reimburse payments by the Bank on Letters of Credit as provided in Subsection 2.5(B) above shall be absolute, unconditional and irrevocable, and shall be performed strictly in accordance with the terms of this Agreement and the Letter of Credit Agreement(s), under any and all circumstances whatsoever, and irrespective of:

(i) any lack of validity or enforceability of any Letter of Credit or any Loan Document, or any term or provision therein;

(ii) any amendment or waiver of or any consent to departure from all or any of the provisions of any Letter of Credit or any Loan Document to which the Bank is not a party;

(iii) the existence of any claim, setoff, defense or other right that the Borrower, the Guarantor, any other party guaranteeing, or otherwise obligated with, the Borrower, any Affiliate thereof or any other Person may at any time have against the beneficiary under any

Letter of Credit, the Bank or any other Person, whether in connection with this Agreement, any other Loan Document or any other related or unrelated agreement or transaction;

(iv) any draft or other document presented under a Letter of Credit proving to be forged, fraudulent, invalid or insufficient in any respect or any statement therein being untrue or inaccurate in any respect;

(v) payment by the Bank under a Letter of Credit against presentation of a draft or other document that does not comply with the terms of such Letter of Credit; and

(vi) any other act or omission to act or delay of any kind of the Bank, or any other person or any other event or circumstance whatsoever, whether or not similar to any of the foregoing, that might, but for the provisions of this section, constitute a legal or equitable discharge of the Borrower's obligations hereunder.

It is understood that the Bank may accept documents that appear on their face to be in order, without responsibility for further investigation, regardless of any notices or information to the contrary and, in making any payment under any Letter of Credit (i) the Bank's exclusive reliance on the documents presented to it under such Letter of Credit as to any and all matters set forth therein, including reliance on the amount of any drafts presented under such Letter of Credit, whether or not the amount due to the beneficiary thereunder equals (but does not exceed) the amount of such draft and whether or not any document presented pursuant to such Letter of Credit proves to be forged or invalid or any statement therein proves to be inaccurate or untrue in any respect whatsoever and (ii) any noncompliance in any immaterial respect of the documents presented under such Letter of Credit with the terms thereof shall, in each case, be deemed not to constitute willful misconduct or gross negligence of the Bank.

(D) Outstanding Letter of Credit Obligations. In addition to the provisions of this Section 2.5 (B), upon an Event of Default, the full amount of all Letter of Credit Obligations shall be deemed to increase the principal amount deemed outstanding under as Revolving Loans (and any unpaid interest thereon and on unpaid letter of credit fees shall be deemed principal of a Revolving Loan), for purposes of (x) distribution of payments hereunder and (y) application of proceeds realized upon the exercise of remedies hereunder or under any Loan Document; provided, however, if any such Letter of Credit thereafter expires without being drawn upon, the amount thereof shall reduce the principal amount deemed outstanding under the Revolving Loans (as previously increased pursuant to this subsection (D)) and the distributions of payments and proceeds to the Bank shall be adjusted accordingly.

2.6. Issuance Warranty. Each request for a Letter of Credit pursuant to Section 2.5(A) shall constitute a warranty and representation to the Bank that, as of the date of such request and the date of the issuance of any such Letter of Credit, all of the following are true and correct: (a) the representations and warranties of the Borrower set forth in Section 8 below are true and correct, (b) the covenants of the Borrower set forth in Section 10 below have been complied with and are true and correct, and (c) no Event of Default or Unmatured Event of Default shall have occurred or will result from the issuance of any such Letter of Credit described in or the transaction for which such Letter of Credit is being issued.

2.7. Issuance Conditions. Notwithstanding anything contained in this Agreement to the contrary, the Bank shall have no obligation to issue any Letter of Credit if an Event of Default or Unmatured Event of Default (a) shall exist on the date of such proposed issuance or (b) shall result from the issuance of such Letter of Credit.

SECTION 3. NOTE EVIDENCING REVOLVING LOANS

3.1. Promissory Note. The Revolving Loans shall be evidenced by an Amended and Restated Secured Revolving Note (the "Revolving Note"), executed on and dated the date hereof, in the principal amount of up to $20,000,000 made by the Borrower in favor of the Bank. The outstanding principal balance of the Revolving Note plus all accrued and unpaid interest shall be due and payable on the Revolving Loan Maturity Date.

3.2. Recordkeeping. The Bank shall record, in accordance with its usual and customary practices, the date and amount of each Revolving Loan, and the interest rate. The Bank may, at its option, record such information on the schedule attached to the Revolving Note. The Bank's records (including such schedule) shall be presumptive evidence of the subject matter thereof. The Bank's failure to so record any such amount or any error in so recording any such amount shall not limit or otherwise affect the Obligations or any part

thereof.

SECTION 4. INTEREST; ADMINISTRATION OF REVOLVING LOANS

4.1. Interest Rate. With respect to each Revolving Loan, the Borrower promises to pay interest on the unpaid principal amount thereof for the period commencing on the date of such Revolving Loan until such Revolving Loan is paid in full at a rate per annum equal to the Lending Rate. Notwithstanding anything contained in this Agreement or the Revolving Note to the contrary, with respect to each Revolving Loan, after the Revolving Loan Maturity Date on upon the occurrence and during the continuance of an Event of Default, the Borrower shall pay interest to the Bank at a rate per annum equal to the Default Rate.

4.2. Payment of Interest. Interest on each of the Revolving Loans shall be payable monthly, in arrears, on the first Business Day of each calendar month and on the Revolving Loan Maturity Date. After the Revolving Loan Maturity Date (whether by acceleration or otherwise) or upon the occurrence and during the continuance of an Event of Default, accrued interest on all Revolving Loans shall be payable on demand.

4.3. Late Payment. Any payment of principal or interest not received within ten days of its due date shall be accompanied by a late charge of three percent (3%) of the amount of such payment.

4.4. Maximum Interest. In no event shall any interest to be paid hereunder exceed the maximum rate permitted by law. In the event the interest rate paid hereunder exceeds the maximum rate permitted by law, the Loan Documents (including the Revolving Note) shall automatically be deemed amended to permit interest charges at an amount equal to, but no greater than the maximum permitted by law.

4.5. Computation of Interest. The interest chargeable hereunder shall be computed on the basis of a 360-day year for the actual number of days in the interest period ("Actual/360 Computation"). The Actual/360 Computation determines the annual effective interest yield by taking the stated (nominal) interest rate for a year's period and then dividing said rate by 360 to determine the daily periodic rate to be applied for each day in the interest period. Accordingly, the Borrower acknowledges that the application of the Actual/360 Computation produces an annualized effective interest rate exceeding that of the nominal rate.

SECTION 5. PREPAYMENTS

5.1. Voluntary Prepayments. Borrower may, from time to time, prepay the Revolving Loans in whole or in part, provided that each partial prepayment shall be in a minimum principal amount of $100,000 (or any integral multiple of $50,000 in excess thereof), and any prepayment of the entire principal amount of all Revolving Loans shall include accrued interest to the date of prepayment.

5.2. Mandatory Prepayments. The sum of the outstanding aggregate principal amount of the Revolving Loans plus the Letter of Credit Obligations shall not exceed the Maximum Credit at any time. Without limiting the Bank's rights to demand payment of the Obligations in accordance with the terms of this Agreement, in the event that at any time the sum of the aggregate amount of the outstanding Revolving Loans plus the Letter of Credit Obligation exceed the Maximum Amount (such excess is referred to herein as an "Overadvance"), such Overadvance shall be payable and the Borrower shall pay to the Bank the entire amount of such Overadvance (plus interest thereon) immediately upon the Bank's demand for such amounts.

SECTION 6. PAYMENTS AND FEES

6.1. Making of Payments. All payments (including prepayments pursuant to Section 5 above) of principal of, or interest on, the Revolving Loans, together with all other Obligations, shall be made without set off, deduction or counterclaim in Dollars when stated to be due by the Borrower to the Bank in immediately available funds. All payments in respect of Obligations required to be made hereunder and under the other Loan Documents shall be debited by the Bank from a demand deposit account maintained by the Borrower with the Bank. The Borrower agrees that in addition to any other rights of setoff granted to the Bank in the Loan Documents, at the Bank's option, all principal, interest, fees, costs or other charges with respect to the Revolving Loans and the Loan Documents and the proceeds of any and all Revolving Loans made by the Bank to the Borrower may be charged directly to the Borrower's account maintained by the Bank; provided, that the foregoing shall not limit the recourse of the Bank to any source of funds.

6.2. Commitment Fee. [INTENTIONALLY DELETED]

6.3. Origination Fee. In consideration of the renewal and increase of

the Maximum Credit contemplated herein, the Borrower shall pay to the Bank an origination fee in the amount of $50,000.00, said fee to be due and payable upon the execution and delivery of this Agreement.

6.4. Due Date. If any payment of principal or interest with respect to any Revolving Loans falls due on a day which is not a Business Day, then such date shall be extended to the next Business Day and additional interest shall

accrue and be payable for the period of such extension.

6.5. Payments in Respect of Increased Costs. In the event that the Bank shall have determined that any Requirement of Law regarding reserves, capital adequacy, special deposit or other similar requirement(s) or any change therein or in the interpretation or application thereof or compliance by the Bank with any request or directive regarding any such requirements (whether or not having the force of law, so long as the Bank reasonably believes that compliance therewith is necessary) from any central bank or Governmental Authority, does or shall have the effect of reducing the rate of return on the Bank's capital as a consequence of its Commitment or any of its obligations hereunder to a level below that which the Bank could have achieved but for such law or change or compliance (taking into consideration such Bank's policies with respect to capital adequacy or other similar requirements) by an amount deemed by the Bank in the exercise of reasonable discretion to be material, then from time to time, upon submission by the Bank to the Borrower of a written demand therefor which sets forth in reasonable detail the basis for such request and the computation of the amount requested (the amounts set forth in any such demand shall be presumptive evidence thereof, absent manifest error), the Borrower shall pay to the Bank such additional amount or amounts as will compensate the Bank for such increased cost relating to this Agreement from the date of such event, together with any late charge applicable thereto as provided in Section 4.3 hereof and thereafter such similar payments requested by the Bank on the basis set forth above.

SECTION 7. SECURITY; INSPECTIONS

7.1. Security Interests. To secure to the Bank the prompt and full payment of all of the Obligations, the Borrower hereby grants the Bank a continuing first priority and only security interest in and lien upon the following of Borrower's described property, wherever the same may now or hereafter be located, now existing or owned and hereafter arising or acquired: (i) all Accounts; (ii) all Chattel Paper; (iii) all contract rights; (iv) all Documents; (v) all General Intangibles but only as they relate to the Accounts, Inventory and Equipment of Borrower (including, without limitation, all trade secrets, trade names, copyrights, copyright applications, patent applications, patents, trademarks, trademark registrations and applications therefor); (vi) all Instruments but only as they relate to Accounts, Inventory and Equipment of Borrower; (vii) all Equipment; (viii) all Inventory; (ix) to the extent not otherwise included in clause (vii) above, all other machinery, apparatus, equipment, fittings, furniture and furnishings now or hereafter located upon the real property of the Borrower, or any part thereof, and used or usable in connection with any future occupancy or use of such property; (x) any and all deposits (general or special, including, but not limited to, indebtedness evidenced by certificates of deposit, whether matured or unmatured but not including trust accounts) and any other indebtedness at any time held or owing by the Bank to or for the credit or the account of the Borrower; (xi) any and all claims or payments made under any insurance policy; (xii) all interest of the Borrower in any goods, the sale or lease of which shall have given or shall give rise to, and in all guaranties and other property securing the payment of or performance under, any Accounts, contracts, General Intangibles or any Chattel Paper or Instruments referred to above; (xiii) all replacements, substitutions, additions or accessions to or for any of the foregoing; (xiv) to the extent related to the property described above, all books, correspondence, credit files, records, invoices and other papers and documents, including, without limitation, to the extent so related, all tapes, cards, computer runs, computer programs and other papers and documents in the possession or control of the Borrower or any computer bureau from time to time acting for the Borrower; and (xv) all property or interests in property of the Borrower which now may be owned or hereafter may come into the possession, custody or control of the Bank, or any agent or affiliate of the Bank (whether for safekeeping, deposit, custody, pledge, transmission, collection or otherwise), including, without limitation, all rights and interests of the Borrower in respect of any and all (a) notes, drafts, letters of credit, stocks, bonds, and debt and equity securities, whether or not certificates, and warrants, options, puts, calls and other rights to acquire or otherwise relating to the same, (b) cash, and (c) proceeds of loans, advances and other financial accommodations, including, without limitation, loans, advances and other financial accommodations made or extended by the Bank; and (xviii) to the extent not otherwise included, all Proceeds and products of any and all of the foregoing (collectively, the "Collateral"). The Borrower shall make appropriate entries upon its financial statements and books and records disclosing Bank's security interest in the Collateral. The Bank shall file, and Borrower consents to such filing, the

appropriate forms to perfect its security interest in the Collateral in accordance with the New Jersey Uniform Commercial Code. All capitalized terms used in this Section 7.1 and not otherwise defined herein shall have the meanings set forth in the New Jersey Uniform Commercial Code; provided, however, that the Bank shall not file a UCC-1 Financing Statement evidencing its security interest in the Collateral in any jurisdiction other than the State of New Jersey unless the dollar value of the Collateral in such other jurisdiction exceeds $500,000 at anytime.

7.2. Trademarks and Licenses. The Borrower further grants to the Bank, an irrevocable, non-exclusive license at no charge to use the trademarks, patents, copyrights and licenses used in connection with the sale of its goods including, without limitation, those listed on Schedule 7.2 annexed hereto (the

latter, the "Trademarks") associated with the Collateral in connection with any foreclosure or liquidation together with the right to grant a non-exclusive sublicense, without charge, to any buyer of such Collateral for the purpose of resale. As used herein, the term "Trademarks" includes all computer programs, and other Collateral used in connection with such Trademarks.

7.3. Maintenance; Right of Inspection. The Borrower shall maintain at its own cost and expense, reasonably satisfactory and complete records of the Collateral, including, without limitation, a record of all payments received and all credits granted with respect to the Collateral. The Borrower shall mark its books and records pertaining to the Collateral to evidence the security interests granted hereunder. The Bank shall have the right (exercisable with reasonable frequency), at any time during normal business hours on reasonable notice to inspect the Collateral and all related records.

7.4. Right of Set off. The Borrower hereby grants to the Bank a contractual possessory security interest in and hereby assigns, conveys, delivers, pledges and transfers to the Bank all of the Borrower's right, title and interest in and to, the Borrower's accounts with the Bank whether existing now or hereafter arising, including, without limitation all accounts held jointly with a third party. The Borrower authorizes the Bank to charge or set off any Obligations against any such accounts.

7.5. Additional Collateral. Without limiting the generality of Section 7.1 above, the defined term "Collateral" shall also include, but is not limited to, all of the real and personal property encumbered by the Lien created by the NM Facility Mortgage, the NM Facility Bond Pledge and the Security Agreement.

SECTION 8. REPRESENTATIONS AND WARRANTIES

To induce the Bank to enter into this Agreement and to make the Revolving Loans herein provided for, the Borrower makes the following representations and warranties to the Bank:

8.1. Capacity. The Borrower is a corporation duly organized, validly existing and in good standing under the laws of the State of New Jersey and has obtained all necessary governmental and corporate authorizations and consents necessary to execute and deliver the Loan Documents and has full power and capacity to execute and deliver the Loan Documents and to perform all Obligations thereunder.

8.2. No Conflict. The execution and delivery of the Loan Documents and the performance by the Borrower of all obligations under the Loan Documents do not and will not contravene or conflict with any Requirements of Law applicable to Borrower or of any other agreement binding upon the Borrower or any of its assets, except for such contraventions or conflicts that will not cause a Material Adverse Effect.

8.3. Title; No Other Liens. The Borrower has good and marketable title to the Collateral subject only to Permitted Encumbrances. Other than with respect to Permitted Encumbrances, no security agreement, financing statement or other public notice with respect to all or any part of the Collateral is on file or of record in any public office except as to which UCC-3 termination statements have been received or which have expired and not been renewed. The appropriate financing statements have been filed by the Bank in the jurisdictions listed on Schedule A hereto against the Borrower, and the Liens granted pursuant to this Agreement constitute perfected first priority liens (to the extent such liens can be perfected by filing) on the Collateral in favor of the Bank, which are prior to all other liens on the Collateral created by the Borrower (other than certain Permitted Encumbrances that, by operation of law, are prior to the Lien of the Bank in the specific Collateral in question) and which are enforceable as such against all creditors of the Borrower.

8.4. Accounts. All Accounts of the Borrower represent sums due for services rendered or goods provided and are enforceable obligations collectible by the Borrower in the normal course of business.

8.5. Inventory and Equipment. All Inventory and Equipment of the Borrower is kept at the locations set forth on Schedule 8.5 hereof and at no other locations (all premises listed on Schedule 8.5 which are leased and/or are warehouses are hereinafter referred to as the "Leased Premises"); provided, however, that some Inventory may, upon purchase by the Borrower, be in transit and in all such cases, all actions necessary to perfect the Bank's security interest in such Inventory shall be taken by the Borrower, including, without limitation, delivery to the Bank (with any necessary endorsements) of all documents of title, bills of lading and warehouse receipts in respect thereof. All Eligible Inventory of the Borrower is and will be of good and merchantable quality, free from defects. No Inventory or Equipment is subject to any Lien except for the security interest of Bank hereunder or Permitted Encumbrances. Borrower hereby agrees that to the extent Inventory or Equipment is now, and at any time hereafter be, stored with a bailee, warehouseman or similar party without Bank's prior written consent and, if Bank gives such consent, Borrower will concurrently therewith cause any such bailee, warehouseman or similar party to issue and deliver to Bank, in form and substance acceptable to Bank, warehouse receipts therefor in Bank's name. No Inventory or Equipment, to the

extent Borrower wishes it to be included in the calculation of the Borrowing Base, is now and nor shall be located at leased premises by the Borrower unless the Bank receives a Landlord's Waiver and Consent, in form and substance satisfactory to the Bank. No Equipment is under consignment to or from any Person other than in accordance with the arrangements described is Schedule 8.5.1 or under similar arrangements in compliance with Section 10.27 hereof. All Equipment is currently usable or currently saleable in the Borrowers' business other than obsolete Equipment not reflected in the Financial Statements.

8.6. Validity and Binding Nature. The Loan Documents constitute legal, valid and binding obligations of the Borrower enforceable against the Borrower in accordance with their respective terms.

8.7. Litigation. Except as set forth on Schedule 8.7, no litigation, arbitration proceedings or governmental proceedings are pending or known to be threatened against the Borrower and no material development not so disclosed has occurred in any litigation, arbitration proceedings or governmental proceedings so disclosed, which would, if adversely determined as to the Borrower, cause a Material Adverse Effect.

8.8. Environmental Matters. The Borrower, including its tenants, users and uses of its property, is in full compliance with all federal, state, county and municipal environmental laws, ordinances, rules, regulations and requirements ("Environmental Law"), except where non-compliance with such Environmental Laws would not have a Material Adverse Effect. There are no liens or threatened liens against Borrower, its property or its tenants, users and uses pursuant to any Environmental Law. If it is revealed that the Borrower or its property, tenants, users or uses, are not in full compliance with any Environmental Law the non-compliance with which would have a Material Adverse Effect or that conditions exist, or may exist, at the property which are not reasonably satisfactory to the Bank in its sole discretion, Borrower will undertake, at its sole cost and expense, whatever actions are necessary to bring Borrower, its property, tenants, users and uses into compliance with Environmental Law and to correct any environmental condition unsatisfactory to the Bank to the satisfaction of the Bank in its sole discretion and to the satisfaction of federal, state, county and local environmental authorities.

8.9. Employee and Other Loans. Schedule 8.9 attached hereto lists (i) all loans made by the Borrower to its partners, agents, directors, officers and employees, Affiliates and other related parties (the "Related Parties"), and (ii) the loans made by Related Parties to the Borrower, the principal balance of the loans and the interest payable thereon and the amount of each monthly payment required to be made thereon. All of the loans referred to in clause (ii) have been subordinated to the Obligations on terms satisfactory to the Bank.

8.10. ERISA. (a) Compliance with ERISA. The Borrower and each of its ERISA Affiliates is in compliance in all material respects with the applicable provisions of ERISA and the Code with respect to each Plan.

(b) Prohibited Transactions. The Borrower has not engaged in a transaction in connection with which the Borrower or the ERISA Affiliate could be subject to a material liability for either a civil penalty assessed pursuant to Section 502(i) of ERISA or a tax imposed by Section 4975 of the Code.

(c) Plan Termination. There has been no termination of a Multiemployer Plan or trust created under any Multiemployer Plan that would give rise to liability to the PBGC on the part of the Borrower or an ERISA Affiliate. No liability to the PBGC has been or is expected to be incurred with respect to any Multiemployer Plan by the Borrower or an ERISA Affiliate. The PBGC has not instituted proceedings to terminate any Multiemployer Plan. There exists no condition or set of circumstances which presents a material risk of termination

of any Multiemployer Plan by the PBGC.

(d) Employee Pension Benefit Plans. Neither the Borrower nor any ERISA Affiliate has any obligation or liability under, or contributed within the preceding five years to, an employee pension benefit plan with the meaning of Section 3(2) of ERISA.

(e) Withdrawal Liability. Neither the Borrower nor any ERISA Affiliate has made a complete or partial withdrawal from a Multiemployer Plan. To the best knowledge of the Borrower, the aggregate liability to which the Borrower or any ERISA Affiliate would become subject under ERISA if the Borrower and all ERISA Affiliates were to withdraw completely from all Multiemployer Plans as of the most recent valuation date, together with any secondary liability for withdrawal liability the Borrower and any ERISA Affiliate may have as of the date hereof, would not have a material adverse effect on the business, operations, property or financial or other condition of the Borrower and its ERISA Affiliates, taken as a whole. To the best knowledge of the Borrower, no such Multiemployer Plan is in reorganization (as such term is defined in Section 4241 of ERISA) or is insolvent (as such term is defined in Section 4245 of ERISA).

(f) Retiree Welfare Benefits. The Borrower does not provide post-retirement health, medical and other welfare benefits for retired employees of the Borrower.

8.11. Tradenames. Certain Accounts may be and/or certain of the

Borrower's invoices may be, from time to time, rendered to customers under the trade names listed on Schedule 8.11 (which together with any new trade names used after the date hereof are referred to collectively, as the "Trade Names" and individually, as a "Trade Name"). As to such Trade Names and the related Accounts, the Borrower hereby warrants and agrees that:

(i) each Trade Name is a trade name and style (and not the name of an independent corporation or other legal entity) by which the Borrower may identify and sell certain of its goods or services and conduct a portion of its business and Borrower has filed or made all public or other notices in any jurisdiction required to lawfully operate under such Trade Names except in those jurisdictions, if any, where the failure to file would not have a Material Adverse Effect;

(ii) all Accounts, Chattel Paper and proceeds thereof and returned merchandise which arise from the sale of goods invoiced under the Trade Names are and shall be (x) owned solely by the Borrower and (y) subject to the security interest and other terms of this Agreement and the other Loan Documents;

(iii) new Trade Names may only be used by the Borrower after the Bank is given fifteen (15) days prior written notice of the use of any such new Trade Name, which notice shall set forth the name of such new Trade Name; and

(iv) the Borrower does not use any Trade Name other than the Trade Names listed on Schedule 8.11 hereto.

8.12. Subsidiaries. As of the date hereof, the Borrower has no Subsidiaries except for Guarantor, EMCORE IRB Company, Inc. ("IRB") and EMCORE Real Estate Holding Corp. ("Holdings"). Holdings is a wholly-owned Subsidiary of the Borrower organized and existing solely for the purpose of owning the Borrower's facility located at 394 Elizabeth Avenue, Somerset, New Jersey. IRB is a wholly-owned Subsidiary of the Borrower organized and existing solely to purchase and fund certain taxable industrial revenue bonds issued by the City of Albuquerque, New Mexico in connection with the development of the NM Facility and certain other related facilities occupied and operated by the Borrower. No other business activities are conducted, and no other material assets are held or possessed, directly or indirectly in or through Holdings or IRB.

8.13. Financial Statements. The audited annual financial statements for the fiscal year ended September 30, 2000 (the "Financial Statements") that have been delivered by the Borrower to the Bank were prepared in conformity with GAAP, consistently maintained throughout the period involved and are correct and complete and fairly present the financial condition and the results of operations of the Borrower as of the dates and for the periods thereof. The Borrower does not have any direct liabilities or Contingent Liabilities not disclosed in such statements. Since September 30, 2000, there has been no material adverse change in the Financial Statements.

Neither the Financial Statements referred to above nor any other statement or report furnished or made available to the Bank by or on Borrower's

behalf in connection with the negotiation or confirmation of the transactions contemplated herein contain, as at the time such statements were furnished, any untrue statement of a material fact or any omission of a material fact necessary to make the statements contained therein not misleading, and all such statements and reports, taken as a whole together with this Agreement, do not contain any untrue statement of a material fact or omit a material fact necessary to make the statements contained herein or therein not misleading.

8.14. Tax Matters. The Borrower has filed all tax returns and reports required to be filed by it with all federal, state or municipal authorities and has paid in full or made adequate provision for the payment of all taxes, interest, penalties, assessments or deficiencies shown to be due or claimed to be due on or in respect of such tax returns and reports, except such amounts as Borrower is contesting in good faith and against which Borrower has established and maintains adequate reserves in accordance with GAAP.

8.15. Ownership of Property; Liens. The Borrower has good and marketable title to its all of its property and assets both real and personal and assets free and clear of any Liens other than Permitted Encumbrances.

8.16. Compliance With Requirements of Law. The Borrower is in compliance with all Requirements of Law, except where such instances of non-compliance are consistent with its normal operations and past practices and in any event could not reasonably be expected to have a Material Adverse Effect. The Borrower has all permits, certificates, licenses, approvals and other authorizations required in connection with the operation of its business. No notice has been issued and no investigation or review is pending or threatened by any Governmental Authority (i) with respect to any alleged violation by Borrower of any law, ordinance, regulation, order, policy or guideline of any Governmental Authority, (ii) with respect to any alleged failure to have all permits, certificates, licenses, approvals and other authorizations required in connection with the operation of the business of the Borrower which will have a Material Adverse Effect.

8.17. Investment Company Act. The Borrower is not an "investment company" within the meaning of the Investment Company Act of 1940, as amended.

8.18. Margin Stock. The Borrower does not own nor presently intends to acquire any Margin Stock. Neither the Borrower, nor any agent acting on behalf of the Borrower has taken any action which might cause this Agreement or any of the other Loan Documents or any of the transactions contemplated hereby or thereby to violate Regulation U or any other regulation of the Board of Governors of the Federal Reserve System.

8.19. General Collateral Representation. (a) With respect to the Collateral, at the time the Collateral becomes subject to the Bank's security interest, the Borrower is and at all times will be the sole owner of and have good and marketable title to the Collateral, free from all Liens, in favor of any Person other than the Bank except Permitted Encumbrances, and has full right and power to grant the Bank a security interest therein. All information furnished to the Bank concerning the Collateral is and will be complete, accurate and correct in all material respects when furnished;

(b) No security agreement, financing statement, equivalent security or Lien instrument or continuation statement covering all or any part of the Collateral is on file or of record in any public office, except such as may have been filed (i) by such Borrower in favor of Bank pursuant to this Agreement, or (ii) in respect of the items of Collateral subject to the Permitted Encumbrances;

(c) The Agreement and the other Loan Documents constitute, as of the date hereof, a valid and continuing first lien on and first security interest in the Collateral in favor of Bank, prior to all other Liens in favor of others and rights of others (except the Permitted Encumbrances) which are enforceable as such as against creditors of and purchasers from Borrower and as against any owner of the real property where any of the Equipment is located and as against any purchaser of such real property and any present or future creditor obtaining a Lien on such real property. All action necessary to protect and perfect such security interest in each item of the Collateral has been duly taken, provided that the Bank has filed the UCC financing statements in the offices listed on Schedule A hereto; and

(d) No person now having possession or control of any of the Collateral consisting of Inventory or Equipment has issued, in receipt therefor, a negotiable bill of lading, warehouse receipt or other document of title.

8.20. Accounts.

(a) As to each and every Eligible Account of Borrower is a bona fide existing obligation, valid and enforceable against the Account debtor for a sum

certain for sales of goods shipped or delivered, or goods leased, or services rendered in the ordinary course of business;

(b) all supporting documents, instruments, chattel paper and other evidence of Indebtedness, if any, delivered to the Bank are complete and correct and valid and enforceable in accordance with their terms, and all signatures and endorsements that appear thereon are genuine, and all signatories and endorsers have full capacity to contract;

(c) the Account debtor is liable for and is obligated to make payment of the amount expressed in such Account according to its terms;

(d) it will be subject to no discount, allowance or special terms of payment without the prior approval of the Bank;

(e) it is subject to no dispute, defense or offset, real or claimed;

(f) it is not subject to any prohibition or limitation upon assignment; and

(g) Borrower has full right and power to grant the Bank a security interest therein and the security interest granted in such Account to the Bank in Section 7 hereof, when perfected, will be a valid first priority and only security interest which will inure to the benefit of the Bank without further action.

SECTION 9. CONDITIONS TO EFFECTIVENESS

This Agreement, and the increase in the Maximum Credit herein contemplated, shall be deemed effect upon satisfaction of the following conditions precedent, as determined by the Bank in its sole discretion:

(a) No Default. (i) No Event of Default or Unmatured Event of Default has occurred or will result from the making of such Revolving Loan, (ii) the representations and warranties of the Borrower contained in Section 8 are true and correct as of the date of such requested Revolving Loan, with the same effect as though made on the date of such Revolving Loan, and (iii) the covenants of the Borrower contained in Section 10 have been complied with as of the date of the requested Revolving Loan.

(b) Other Loan Documents. The Bank shall have received executed counterparts of this Agreement by the Borrower and the following additional documents prior to the execution hereunder:

(1) Revolving Note and the other Loan Documents to be executed and delivered in connection with this Agreement to which Borrower is a party, duly executed and delivered by the Borrower;

(2) Certificates of insurance with acceptable lender's loss payee, lender's loss payable and additional insured endorsements;

(3) A Guaranty and Security Agreement of ASI and TSI, in the form proposed by the Bank, together with related UCC financing statements in proper form for filing in the State of New Mexico, in each case duly executed and delivered by ASI and TSI;

(4) Opinion of Counsel for the Borrower in form and substance satisfactory to the Bank;

(5) UCC, judgment, and federal and state tax lien search report on the Borrower and each Guarantor from the Department of Treasury of New Jersey, Somerset County, New Jersey and the Secretary of State of New Mexico;

(6) Title search reports of the real estate records of City of Albuquerque, New Mexico with respect to the NM Facility;

(7) Good Standing Certificates of the Borrower from the Secretary of State of New Jersey and Good Standing Certificates of each Guarantor from the Secretary of State of Delaware and New Mexico, as applicable;

(8) Secretary's Certificate of Borrower attaching Certificate of Incorporation, by-laws and resolutions of the Board of Directors authorizing the transaction; and

(9) Secretary's Certificate of each Guarantor attaching Certificate of Incorporation, by-laws and resolutions of its Board of Directors authorizing the transaction; and

(10) Such other documents as may be requested by the Bank.

(c) Payment of Fees and Expenses. The Bank shall have received evidence of payment of (i) the origination fee as described in Section 6.3 hereof, (ii) payment of all fees and expenses of Bank's counsel, Windels Marx Lane & Mittendorf, LLP for legal services rendered in connection with the transactions contemplated herein, as well as fees and expenses incurred in connection with the administration of the Existing Agreement and other related matters from and after January 2, 2000, and (iii) any and all other expenses or reimbursable items incurred by the Bank in connection with the transactions contemplated herein.

SECTION 10. COVENANTS OF BORROWER

The Borrower covenants and agrees that so long as the Revolving Loan Commitment remains in effect, there are any Revolving Loans outstanding, or any other Obligation remains unpaid, the Borrower shall and shall cause each of its Subsidiaries to:

10.1. Financial Statements and Other Information. Borrower will furnish to the Bank:

(a) Financial Statements. Copies of (i) Borrower's annual financial statements reflecting its operations during such fiscal year, including, without limitation, a balance sheet, profit and loss statement and statement of cash flow, with supporting schedules (if any), all in reasonable detail, prepared in conformity with GAAP, applied on a basis consistent with that of the preceding year prepared and audited (without qualifications) by an independent certified public accountant reasonably acceptable to the Bank, within ninety (90) days after the end of each Fiscal Year, and (ii) Borrower's management prepared fiscal quarter financial statements reflecting its operations through such fiscal quarter end, including, without limitation, a balance sheet, profit and loss statement and statement of cash flow, with supporting schedules (if any), all in reasonable detail, prepared in conformity with GAAP, applied on a basis consistent with that of the preceding year within sixty (60) days after the end of each such fiscal quarter.

(b) Budgets. (i) On or prior to the effective date of this Agreement, copies of Borrower's management prepared expenditure budget and revenue forecasts for the fiscal year commencing October 1, 2000, together with any and all amendments or modifications thereto through said effective date, and (ii) by no later than September 30, 2001, copies of Borrower's management prepared expenditure budget and revenue forecast to the fiscal year commencing October 1, 2001. Each such budget and forecast to be in reasonable detail, with schedules supporting any substantial assumptions utilized in the preparation thereof,

prepared in conformity under GAAP, applied on a consistent basis, and otherwise in form and substance satisfactory to the Bank.

(c) Notice of Default. Promptly upon discovery thereof, written notice of any Event of Default or Unmatured Event of Default describing such Event of Default or Unmatured Event of Default in reasonable detail and describing the steps being taken by the Borrower to cure the same if the same may be cured.

(d) Financial Covenant Compliance. Concurrently with the delivery of the financial statements referred to in Section 10.1(a)(i) and (ii) above, a certificate of the Chief Financial Officer or President of the Borrower stating that such officer has obtained no knowledge of any Unmatured Event of Default or Event of Default except as specified in such certificate and showing in detail the calculations supporting such statement in respect of Section 10.14.

(e) Monthly Reports, Borrowing Base Certificate. Concurrently with the initial Revolving Loan or Letter of Credit requested hereunder and on the 15th day of each calendar month in which there is any Obligations outstanding hereunder, a completed Borrowing Base Certificate (in the form annexed hereto as Exhibit 10.1(f)) for the month most recently then ended, signed by the Chief Financial Officer of the Borrower, detailing the Borrower's availability under the Borrowing Base, together with a complete accounts receivable aging report (including a detailed agings of accounts by total (including original date of each invoice), a summary of aging of accounts by customer and a reconciliation statement), and a report of the aggregate dollar value of all Inventory held by the Borrower for the month just ended (showing individual values for raw materials, work-in-process, finished goods inventory and any inventory obsolescence), each of such reports to be in form and substance reasonably satisfactory to the Bank.

(f) Other Public Statements and Report. Promptly, after the same are sent copies of all financial statements and reports and proxy statements which the Borrower sends to its public stockholders, if any, and promptly after the same are filed, copies of all financial statements and reports which the Company may make to, or file with, the Securities and Exchange Commission or any

successor or analogous Governmental Authority.

(g) Other Information. From time to time such other information concerning the Borrower as the Bank may reasonably request, including, without limitation, accounts receivable agings, accounts payable agings, contracts in progress and lease copies.

All financial statements delivered by the borrower shall include financial statements of its Subsidiaries on a consolidating basis.

10.2. Use of Proceeds. The Borrower shall use the proceeds of the Revolving Loans and Letters of Credit for working capital and other lawful general corporate purposes. In no event shall any Revolving Credit Loan or Letter of Credit be used directly or indirectly to acquire or carry and "margin stock" as such term is defined in Regulation U promulgated by The Board of Governors of Federal Reserve Board, as in effect from time to time.

10.3. Other Agreements. The Borrower and each of its Subsidiaries will not enter into any agreement containing any provision which would be violated or breached by the performance of the Borrower's and each of its Subsidiaries' obligations hereunder.

10.4. Indebtedness for Borrowed Money. The Borrower and each of its Subsidiaries shall not incur, or permit to exist, any Indebtedness for borrowed money except (i) Indebtedness incurred pursuant to borrowings hereunder, (ii) Indebtedness incurred in respect of any other loans or other financial accommodations made by the Bank in its discretion to the Borrower and each of its Subsidiaries, (iii) Indebtedness existing on the date hereof and reflected in the Financial Statements (other than Subordinated Debt), (iv) purchase money Indebtedness incurred in the acquisition of fixed assets and (v) Subordinated Debt; provided, that the Indebtedness permitted pursuant to clauses (ii)-(iv) shall not exceed $4,000,000 in the aggregate at any time outstanding and provided, further, that the financial accommodations to the Guarantor permitted under Section 10.26 shall not be deemed to be in violation of this covenant.

10.5. Liens. The Borrower and all of its Subsidiaries shall not create, assume or permit to exist, any Lien on any of its property or assets now owned or hereafter acquired except (i) Liens in favor of the Bank; (ii) other Liens incidental to the conduct of its business or the ownership of its property and assets which were not incurred in connection with the borrowing of money or the obtaining of advances or credit and which do not materially impair the use thereof in the operation of its business; (iii) Liens for taxes or other governmental charges which are not delinquent or which are being contested in good faith and for which a reserve shall have been established in accordance with generally accepted accounting principles; and (iv) purchase money Liens granted to secure the unpaid purchase price of any fixed assets within the limits imposed by Section 10.4 hereof. The Liens described in clauses (i) through (iv) above are referred to herein as "Permitted Encumbrances".

10.6. Accounts. The Borrower and each of its Subsidiaries shall observe and perform all obligations arising under all Accounts. In the event any

of Borrower's and each of its Subsidiaries' Accounts is or becomes evidenced by a promissory note, a trade acceptance or any other instrument for the payment of money, Borrower and each of its Subsidiaries will promptly deliver such instrument to the Bank appropriately endorsed to the Bank's order. Regardless of the form of such endorsement, Borrower and each of its Subsidiaries hereby waives presentment, demand, notice of dishonor, protest and notice of protest and all other notices with respect thereto. After an occurrence of an Event of Default and during the continuance thereof, upon the request of the Bank at any time, the Borrower and each of its Subsidiaries shall notify Account debtors that the Accounts have been assigned to the Bank and that payments in respect thereof shall be made directly to the Bank. The Bank may at any time communicate with account debtors to verify to its satisfaction the existence, amount and terms of Accounts.

10.7. Insurance. The Borrower and each of its Subsidiaries shall maintain insurance (including, without limitation, all risk, casualty and liability and business interruption insurance on a full replacement cost basis (with no co-insurance)) for the full insurable value of the Collateral of such types, in such amounts as is customary in the case of companies engaged in a similar business with insurers, and in form and substance reasonably satisfactory to the Bank, which policy shall name the Bank as loss payee and additional insured pursuant to a long form secured party endorsement and include a 30 day notice of modification and cancellation clause. Borrower shall furnish to the Bank, upon request of the Bank a copy of such policy and proof that all premiums theretofore owing have been paid in full.

10.8. Taxes. The Borrower and each of its Subsidiaries shall pay when due all federal, state or local or foreign taxes, levies, assessments, charges or claims except when the amount or validity thereof is currently being

contested in good faith and reserves in conformity with GAAP with respect thereto have been provided for on the books of the Borrower.

10.9. ERISA. (a) The Borrower shall notify Bank of the following events, as soon as possible and in any event within thirty days after the Borrower knows or has reason to know thereof: (i) the occurrence of a prohibited transaction (as defined in Section 406 of ERISA or Section 4975 of the Code) with respect to any Plan, or (ii) the institution of proceedings or the taking or expected taking of any other action by the PBGC or the Borrower or any ERISA Affiliate to terminate or withdraw or partially withdraw from any Multiemployer Plan and the Reorganization or Insolvency of such Multiemployer Plan (as such terms are defined in ERISA), and in addition to such notice, delivery to the Bank of a certificate of a Responsible Officer setting forth details relating thereto, and the action that the Borrower and the ERISA Affiliate propose to take with respect thereto and when known, any action taken or threatened by the Internal Revenue Service or the PBGC, together with a copy of any notice to the PBGC or the Internal Revenue Service or any notice delivered by the PBGC or the Internal Revenue Service.

(b) The Borrower and any ERISA Affiliate will not:

(i) knowingly engage in any transaction in connection with which the Borrower could be subject to either a material civil penalty assessed pursuant to Section 502(i) of ERISA or a tax imposed by Section 4975 of the Code; or

(ii) fail to make any payments when due to any Multiemployer Plan which the Borrower or any ERISA Affiliate may be required to make under any agreement relating to such Multiemployer Plan or any law pertaining thereto. The Borrower agrees (x) upon the request of the Bank to obtain a current statement of withdrawal liability from each Multiemployer Plan to which the Borrower or an ERISA Affiliate contributes or to which the Borrower or an ERISA Affiliate has an obligation to contribute and (y) to transmit a copy of such statement to the Bank, so long as the Bank or its nominee shall be the holder of the Revolving Note, within 15 days after the Borrower receives the same.

10.10. Compliance with Laws. The Borrower and each of its Subsidiaries shall remain in good standing in the laws of the state of their respective organization and shall at all times comply in all material respects with all Requirements of Law applicable to its business, including all Environmental Laws. The Borrower and each of its Subsidiaries shall remain in good standing as a foreign corporation in each jurisdiction wherein the failure to so qualify will have a Material Adverse Effect.

10.11. Sale or Change of Business. The Borrower and each of its Subsidiaries shall not (i) without the Bank's prior written consent (which shall not be unreasonably withheld), enter into any merger or consolidation or liquidate, windup or dissolve itself or sell, transfer or lease or otherwise dispose of all or any substantial part of its assets (other than sales of inventory and obsolescent equipment in the ordinary course of business) or acquire by purchase or otherwise the business or assets of, or stock of, another business entity or (ii) except upon 30 days prior written notice to the Bank (x) change the name or location of its business or (y) move Inventory and Equipment to any location other than at its locations set forth in Section 8.5 hereof.

10.12. Further Documentation. At any time and from time to time, upon

the request of the Bank and at the sole expense of the Borrower and each of its Subsidiaries, the Borrower and each of its Subsidiaries shall promptly and duly execute and deliver such further instruments and documents and take such further action as the Bank may reasonably request for the purpose of obtaining or preserving the security interest granted to the Bank hereunder and of the rights and powers granted herein, including, without limitation, the filing of any financing, amendment or continuation statements under the Uniform Commercial Code. The Borrower and each of its Subsidiaries hereby irrevocably constitutes and appoints the Bank with full power of substitution, as its true and lawful attorney-in-fact with full irrevocable power and authority in the place and stead of the Borrower and each of its Subsidiaries and in the name of the Borrower and each of its Subsidiaries or in their own name, from time to time in the Bank's discretion, to execute and file, in Borrower's and each of its Subsidiaries' name and on its behalf, any Uniform Commercial Code financing, amendment or continuation statement. The Borrower and each of its Subsidiaries hereby ratify all that said attorney shall lawfully do or cause to be done by virtue hereof. This power of attorney is a power coupled with an interest and shall be irrevocable.

10.13. Maintenance of a Bank Account. The Borrower shall maintain its primary operating accounts and one or more demand deposit accounts with the Bank.

10.14. Financial Covenants

(a) Core EBITDA. The Borrower and its Subsidiaries, on a consolidated basis, shall maintain a Core EBITDA of not less than the amounts set forth below as of the end of the fiscal quarters set forth below:

Fiscal Quarter Ending	Minimum Core EBITDA
March 31, 2001	$ 2,500,000
June 30, 2001	$ 5,000,000
September 30, 2001	$ 6,500,000
December 31, 2001	$ 8,500,000
March 31, 2002 and each Fiscal year end thereafter	$10,000,000

Said ratio to be tested no less frequently than quarterly.

(b) The Borrower shall maintain a Liquidity of not less than $10,000,000 at all times, said requirement to be tested no less frequently than quarterly.

(c) Effective Net Worth. The Borrower and its Subsidiaries, on a consolidated basis, shall maintain an Effective Net Worth all times of not less than $180,000,000, said requirement to be tested no less frequently than quarterly.

(d) Quick Ratio. The Borrower and its Subsidiaries, on a consolidated basis, shall maintain a Quick Ratio at all times of not less than 1.10 to 1.00, said ratio to be tested no less frequently than quarterly.

10.15. Limitations on Modifications, Waivers and Extensions of Agreements Giving Rise to Accounts. The Borrower will not (i) amend, modify, terminate or waive any provision of any material agreement giving rise to an Account in any manner which could reasonably be expected to materially adversely affect the value of such material Account as Collateral as the value of such account is calculated by the Bank in accordance with determination of the Borrowing Base, (ii) fail to exercise promptly and diligently each and every material right which it may have under each agreement giving rise to an Account or (iii) fail to deliver to the Bank a copy of each material demand, notice or document received by it relating in any way to any agreement giving rise to a material Account.

10.16. Limitation on Discounts, Compromises and Extensions of Accounts. Upon the occurrence and during the continuance of an Event of Default, the Borrower will not grant any extension of the time of payment of any of the Accounts or compromise, compound or settle the same for less than the full amount thereof, release, wholly or partially, any Person liable for the payment thereof, or allow any credit or discount whatsoever thereon.

10.17. Limitation on Investments. The Borrower and each of its Subsidiaries shall not purchase any stock, bonds, notes, debentures or other securities of or any assets constituting a business unit of any Person, except (i) investments in direct obligations of the United States government and certificates of deposit of United States commercial banks having a tier 1 capital ratio of not less than 6%, and then in an amount not to exceed 10% of the issuing bank's unimpaired capital and surplus and (ii) investments in the form of capital contributions to Uniroyal Optoelectronics LLC, UMCORE LLC and/or GELcore LLC. The foregoing shall not, however, be construed as an express or implied consent by the Bank to any transaction otherwise prohibited or restricted by this Agreement undertaken by the Borrower and each of its Subsidiaries to obtain the funds for any such investment.

10.18. Fiscal Year. The Borrower shall not change its Fiscal Year.

10.19. Limitation on Contingent Obligations. Subject to Section 10.4 hereof, the Borrower and each of its Subsidiaries shall not create, incur, assume or suffer to exist any Contingent Obligation(s) in excess of $100,000 in the aggregate in any Fiscal Year.

10.20. Limitation on Creation or Acquisition of Subsidiaries. The Borrower and each of its Subsidiaries shall not create, make any capital contributions to or acquire any Subsidiary or transfer any assets to any Subsidiary.

10.21. Dividends. The Borrower and each of its Subsidiaries shall not declare any dividends (other than dividends payable solely in stock of Borrower) on, or make any payment on account of, any shares of any class of stock of the Borrower and each of its Subsidiaries, whether now or hereafter outstanding, or make any other distribution in respect thereof, either directly or indirectly, whether in cash or property or in obligations of the Borrower and each of its Subsidiaries, or make any payment on account of, or purchase or otherwise acquire, any securities of the Borrowers from any Person.

10.22. Environmental Liabilities. The Borrower and each of its Subsidiaries shall not violate any Requirement of Law, rule or regulation regarding Hazardous Material; and, without limiting the foregoing, dispose of (or permit any Person to dispose of) any Hazardous Material into or onto, or (except in accordance with applicable law) from, any real property owned or operated by the Borrower or any of its Subsidiaries, nor allow any Lien imposed pursuant to any Requirement of Law relating to Hazardous Materials or the disposal thereof to be imposed or to remain on such real property, which violation or Lien would have a Material Adverse Effect.

10.23. Lease Payments. The Borrower and each of its Subsidiaries shall not expend in the aggregate, either directly or indirectly, in excess of $2,000,000 in any Fiscal Year for the lease, rental or hire of real or personal property pursuant to any rental agreement therefor, whether an operating lease, or otherwise (but excluding Capitalized Leases).

10.24. Landlord's Waivers. The Borrower shall obtain with respect to all of its leased premises, a Landlord's Waiver of Lien from each landlord in form and substance satisfactory to the Bank to the extent Borrower wishes to include Inventory (to the extent it would otherwise be considered Eligible Inventory) located at such premises in the Borrowing Base.

10.25. Prepayment of Indebtedness. The Borrower shall not pay, discharge or satisfy (either in whole or in part), at or before maturity any long term Indebtedness (as determined in accordance with GAAP), except the foregoing shall not be construct to prohibit the prepayment of any of the Obligations or any non-cash retirement of debt relating to the exercise of the Warrants.

10.26. Loans and Advances. The Borrower and each of its Subsidiaries shall not, during any Fiscal Year, make loans or advances to any Person (excluding ordinary course of business travel and expense advances) other than (i) the existing loans to Related Parties listed on Schedule 8.9 hereof (the "Existing Loans") and (ii) loans to Related Parties made after the date hereof, provided, that the aggregate principal amount of all such loans does not exceed $100,000 at any time outstanding except that the Borrower may (i) make financial accommodations to the Guarantor, however characterized, whether as loans, notes payable, accounts receivable, advances or otherwise, in an amount not to exceed $2,000,000 at any time outstanding, and (ii) accept the notes secured by Stock Pledge Agreements dated on or about December 4, 1997 made in its favor by (1) Thomas J. Russell (in the principal amount of $3,127,560.72), (2) Gallium Enterprises Inc. (in the principal amount of $2,632,338.48), (3) Howard R. Curd (in the principal amount of $556,067.36), (4) Howard F. Curd (in the principal amount of $556,067.36) and (5) Reuben F. Richards, Jr. (in the principal amount of $556,067.36). The Borrower and each of its Subsidiaries agrees that all payments made in respect of the Existing Loans shall permanently reduce the permitted amount of such loans for purposes of determining compliance with this covenant. The Borrower and each of its Subsidiaries shall deliver the instruments evidencing such loans and advances promptly to the Bank.

10.27. Consigned Equipment. The Borrower and each of its Subsidiaries shall not permit Equipment with a value (in the aggregate as to all such Equipment) in excess of $4,000,000 to become Consigned Equipment.

SECTION 11. EVENTS OF DEFAULT AND REMEDIES

11.1. Events of Default. Each of the following shall constitute an Event of Default under this Agreement and the other Loan Documents.

(a) Non-Payment of Principal or Interest. Non-payment when due of any principal of or interest due on the Revolving Note or non-payment of any of Borrower's other Obligations when due and payable or declared due and payable; or

(b) Bankruptcy or Insolvency. Either Borrower or Guarantor becomes insolvent or generally fails to pay, or admits in writing its inability to pay debts as they become due; or applies for, consents to, or acquiesces in the

appointment of, a trustee, receiver, guardian, conservator or other custodian for the Borrower or Guarantor or any of their respective property, or the Borrower or Guarantor makes a general assignment for the benefit of creditors; or, in the absence of such application, consent or acquiescence, a trustee, receiver, guardian, conservator or other custodian is appointed for the Borrower or Guarantor or for a substantial part of any of their respective property and is not discharged within 30 days; or any bankruptcy, reorganization, debt arrangement or other case or proceeding under any bankruptcy or insolvency law, or any liquidation proceeding, is commenced in respect of the Borrower or Guarantor and if such case or proceeding is not commenced by the Borrower or Guarantor, it is consented to or acquiesced in by the Borrower or Guarantor or remains undismissed for thirty (30) days; or

(c) Non-Compliance with Certain Covenants. Borrower shall fail in the observance or performance of any covenant or agreement set forth in Sections 10.1, 10.3, 10.4, 10.5, 10.7, 10.10, 10.11, 10.13, 10.14, 10.16, 10.17, 10.18, 10.19, 10.20, 10.21, 10.22, 10.23, 10.25, 10.26, or 10.27; or

(d) Non-Compliance with Other Terms of this Agreement or any of the other Loan Documents or any other Agreements. (i) Failure by either Borrower or Guarantor to comply with or to perform any provision of this Agreement or the other Loan Documents (and not constituting an Event of Default under any of the preceding or following provisions of this Section 11 or under any specific provision set forth in the other Loan Documents) and continuance of such failure for 15 days after notice thereof to the Borrower from the Bank or (ii) a breach by the either Borrower or Guarantor or any Subsidiary or Affiliate of Borrower or Guarantor of any term, obligation, provision, covenant, representation or warranty, arising under any present or future agreement, including swap agreements (as defined in 11 U.S.C. ss.101), with or in favor of the Bank and/or any Affiliate, including the failure to make any payment when due; or

(e) Guarantor. If (i) Guarantor fails to comply with any payment obligation set forth in the Guaranty or if Guarantor fails to comply with any of the covenants or other agreements set forth in the Guaranty or any other Loan Document to which it is a party beyond any applicable grace period provided for therein, or (ii) any representation or warranty made or deemed made by Guarantor in the Guaranty or any other Loan Document to which it is a party or which is contained in any exhibit, schedule or any other document or other statement furnished at any time under or in connection with the Guaranty or any of the other Loan Documents shall prove to have been incorrect in any material respect on or as of the date made or deemed made, or (iii) if Guarantor shall terminate, purport to terminate or take any steps which have the effect of decreasing its liability under the Guaranty; or

(f) Warranties. Any representation or warranty made by the Borrower herein is breached or is false or misleading in any material respect or omits to state a material fact, or any schedule, certificate, financial statement, report, notice, or other writing furnished by the Borrower to the Bank is false or misleading in any material respect or omits to state a material fact on the date as of which the facts therein set forth are stated or certified; or

(g) Defaults under other Loans. Borrower or Guarantor defaults under (i) any Contingent Obligation, loan, extension of credit, security agreement, mortgage or other agreement with respect to Indebtedness for borrowed money with the Bank or any other Person, or (ii) any material contract with any Person and such default is declared and is not cured within the time, if any, specified therefor in any agreement covering same; or

(h) Collateral. If any portion of the Collateral or any other assets of Borrower or Guarantor having a value singly or in the aggregate in excess of $100,000 are attached, seized, subjected to a writ or distress or warrant, or are levied upon or come within the possession of any receiver, trustee, custodian or assignee for the benefit of creditors and the same is not terminated or dismissed within thirty (30) days or if a notice of lien, levy or assessment of record is filed against the Collateral; or

(i) Judgements. One or more judgements, decrees, arbitration awards or rulings shall be entered against the Borrower or Guarantor involving in the aggregate a liability of $100,000 or more and all such judgements, decrees, awards and rulings shall not have been vacated, paid, discharged, stayed or bonded pending appeal within thirty (30) days from the entry thereof; or

(j) ERISA. (i) if any Person shall engage in any "prohibited transaction" (as defined in Section 406 of ERISA or Section 4975 of the Code) involving any Plan, (ii) a Reportable Event shall occur with respect to, or proceedings shall commence to have a trustee appointed, or a trustee shall be appointed, to administer or to terminate, any Multiemployer Plan, which Reportable Event or institution of proceedings or appointment of a trustee is likely to result in the termination of such Multiemployer Plan for purposes of Title IV of ERISA, and, in the case of a Reportable Event, the continuance of such Reportable Event unremedied for ten days after notice of such Reportable Event pursuant to Section 4043(a), (c) or (d) of ERISA is given and, in the case of the institution of proceedings, the continuance of such proceedings for ten days after commencement thereof, (iii) the Borrower or an ERISA Affiliate incurs a partial or complete withdrawal from a Multiemployer Plan or (iv) any other event or condition shall occur or exist, with respect to a Plan or Multiemployer

Plan; and in each case in clauses (i) through (iv) above, such event or condition, together with all other such events or conditions, if any, could subject the Borrower or any of its Subsidiaries to any tax, penalty or other liabilities in the aggregate material in relation to the business, operations, property or financial or other condition of the Borrower taken as a whole; or

(k) Change of Control. There shall occur a Change of Control (as

defined below). As used herein, "Change of Control" means the acquisition by any person or group of persons (within the meaning of the Securities Exchange Act of 1934, as amended, and the rules and regulation promulgated thereunder, the "Exchange Act") of beneficial ownership (within the meaning of Rule 13d-3 promulgated by the Securities and Exchange Commission, or any successor thereto, under the Exchange Act) of 50.1% or more of the issued and outstanding shares of common stock of the Borrower.

11.2. Effect of Event of Default. If any Event of Default described in Section 11.1(b) shall occur, the Revolving Loan Commitment (if not theretofore terminated) shall automatically and immediately terminate and the Revolving Note and the other Obligations and all other amounts payable under the Loan Documents shall become automatically and immediately due and payable, all without presentment, demand, protest or notice of any kind. Upon the occurrence of any Event of Default and during the continuance thereof (other than the event described in Section 11.1(b)), the Bank may declare the Commitment (if not theretofore terminated) to be terminated and may also declare the Revolving Note, the other Obligations and all other amounts payable under the Loan Documents to be due and payable, whereupon the Revolving Loan Commitment shall immediately terminate and the Revolving Note and the other Obligations shall become immediately due and payable, all without presentment, demand, protest or other notice of any kind. The Bank shall promptly advise the Borrower of any such declaration, but failure to do so shall not impair the effect of such declaration. Except as expressly provided above in this Section presentment, demand, protest and all other notices of any kind are hereby expressly waived by the Borrower. Upon the occurrence of any Event of Default and during the continuance thereof, the Bank, may, at its option, exercise any of its rights under this Agreement, the other Loan Documents or any rights and remedies of a secured party under the Uniform Commercial Code.

11.3. Remedies. Without limiting the generality of the remedies available to the Bank may, without demand of performance or other demand, presentment, protest, advertisement or notice of any kind (except any notice required by law referred to below) to or upon the Borrower (all and each of which demands, presentments, protests, advertisements and notices are hereby waived), upon the occurrence and during the continuance of an Event of Default, collect, receive, appropriate and realize upon the Collateral, or any part thereof, and/or may forthwith sell, lease, assign, give option or options to purchase, or otherwise dispose of and deliver the Collateral or any part thereof (or contract to do any of the foregoing) in one or more parcels at public or private sale or sales, at any exchange, broker's board or office of the Bank or elsewhere upon such terms and conditions as it may deem advisable and at such prices as it may deem best, for cash or on credit or for future delivery without assumption of any credit risk. The Bank shall have the right upon any such public sale or sales, and, to the extent permitted by law, upon any such private sale or sales, to purchase the whole or any part of the Collateral so sold. The Borrower further agrees, at the Bank's request, to assemble the Collateral and make it available to the Bank at places which the Bank shall reasonably select, whether at the Borrower's premises or elsewhere. The Bank shall apply the net proceeds of any such collection, recovery, receipt, appropriation, realization or sale, after deducting all reasonable costs and expenses of every kind incurred therein or incidental to the care or safekeeping of any of the Collateral or in any way relating to the Collateral or the rights of the Bank hereunder, including, without limitation, reasonable attorneys' fees and disbursements, to the payment in whole or in part of the Obligations, in such order as the Bank may elect; and only after such application and after the payment by the Bank of any other amount required by any provision of law, including, without limitation, any provision of the Uniform Commercial Code, need the Bank account for the surplus, if any, to the Borrower. To the extent permitted by applicable law, the Borrower waives all claims, damages and demands it may acquire against the Bank arising out of the exercise by the Bank of any of its rights hereunder. If any notice of a proposed sale or other disposition of Collateral shall be required by law, such notice shall be deemed reasonable and proper if given at least 10 days before such sale or other disposition. The Borrower shall remain liable for any deficiency if the proceeds of any sale or other disposition of the Collateral are insufficient to pay the Obligations and the reasonable fees and disbursements of any attorneys employed by the Bank to collect such deficiency.

11.4. Limitation on Duties Regarding Preservation of Collateral. The Bank's sole duty with respect to the custody, safekeeping and physical preservation of the Collateral in its possession, under the Uniform Commercial Code or otherwise, shall be to deal with it in the same manner as the Bank deals with similar property for its own account. Neither the Bank nor any of its directors, officers, employees or agents shall be liable for failure to demand, collect or realize upon all or any part of the Collateral or for any delay in doing so or shall be under any obligation to sell or otherwise dispose of any Collateral upon the request of the Borrower or otherwise.

11.5. Cash Collateral for Letter of Credit Obligation. Without limiting the generality of any right or remedy granted to the Bank hereunder or

under any other Loan Document, upon the occurrence, and during the continuance of an Event of Default; the Bank may demand that the Borrower deposit with the Bank cash collateral for the undrawn amount of any Letter of Credit then in effect pursuant to such terms as the Bank may require. In connection therewith, the Borrower shall execute and deliver such agreements, assignments, instruments, financing statement or other documentation as the Bank may deem necessary or appropriate.

SECTION 12. GENERAL

12.1. Waiver; Amendments. No delay on the part of the Bank in the exercise of any right, power or remedy shall operate as a waiver thereof, nor shall any single or partial exercise by the Bank of any right, power or remedy preclude other or further exercise thereof, or the exercise of any other right, power or remedy. No amendment, modification or waiver of, or consent with respect to, any provision of the Loan Documents shall in any event be effective unless the same shall be in writing and signed and delivered by the Bank and the Borrower (in the case of a document to which the Borrower is a party) and then any such amendment, modification, waiver or consent shall be effective only in the specific instance and for the specific purpose for which given.

12.2. WAIVER OF TRIAL BY JURY. THE BORROWER WAIVES TRIAL BY JURY IN ANY ACTION, PROCEEDING, CLAIM, OR COUNTERCLAIM, WHETHER IN CONTRACT OR TORT, AT LAW OR IN EQUITY, WITH RESPECT TO, IN CONNECTION WITH OR ARISING OUT OF OR IN ANY WAY RELATED TO THIS AGREEMENT OR THE LOAN DOCUMENTS OR THE VALIDITY, PROTECTION, INTERPRETATION, ADMINISTRATION, COLLECTION OR ENFORCEMENT HEREOF OR THEREOF, OR ANY CLAIM OR DISPUTE HEREUNDER OR THEREUNDER. NO OFFICER OF THE BANK HAS AUTHORITY TO WAIVE, CONDITION OR MODIFY THIS PROVISION.

12.3. Arbitration. (a) Upon demand of any party hereto, whether made before or after institution of any judicial proceeding, any dispute, claim or controversy arising out of, connected with or relating to this Agreement and the other Loan Documents ("Disputes") between or among parties to this Agreement and other Loan Documents shall be resolved by binding arbitration as provided herein. Institution of a judicial proceeding by a party does not waive the right of that party to demand arbitration hereunder. Disputes may include, without limitation, tort claims, counterclaims, disputes as to whether a matter is subject to arbitration, claims bought as class actions, claims arising from Loan Documents executed in the future, or claims arising out of or connected with the transaction reflected by this Agreement and other Loan Documents.

(b) Arbitration shall be conducted under and governed by the Commercial Financial Disputes Arbitration Rules (the "Arbitration Rules") of the American Arbitration Association (the "AAA") and Title 9 of the U.S. Code. All arbitration hearings shall be conducted in the city in which the office of the Bank first stated above is located. The expedited procedure set forth in Rule 51 et seq. of the Arbitration Rules shall be applicable to claims of less that $1,000,000. All applicable statutes of limitation shall apply to any Dispute. A judgment upon the award may be entered in any court having jurisdiction. The panel from which all arbitrators are selected shall be comprised of licensed attorneys. The single arbitrator selected for expedited procedure shall be a retired judge from the highest court of general jurisdiction, state or federal, of the state where the hearing will be conducted or if such person is not available to serve, the single arbitrator may be licensed attorney. Notwithstanding the foregoing, this arbitration provision does not apply to Disputes under or related to swap agreements.

(c) Notwithstanding the preceding binding arbitration provisions, Bank and Borrower agree to preserve, without diminution, certain remedies that any party hereto may employ or exercise freely, independently or in connection with an arbitration proceeding or after an arbitration action is brought. Bank and Borrower shall have the right to proceed in any court of proper jurisdiction or by self-help or exercise or prosecute the following remedies, as applicable: (i) all rights to foreclose against any real or personal property or other security by exercising a power of sale granted under Loan Documents or under applicable law or by judicial foreclosure and sale, including a proceeding to confirm the sale; (ii) all rights of self-help including peaceful occupation of real property and collection of rents, set-off, and peaceful possession of personal property; (iii) obtaining provisional or ancillary remedies including injunctive relief, sequestration, garnishment, attachment, appointment of receiver and filing an involuntary bankruptcy proceeding; and (iv) when applicable, a judgment by confession of judgment. Preservation of these remedies does not limit the power of an arbitrator to grant similar remedies that may be requested by a party in a Dispute.

Borrower and Bank agree that they shall not have a remedy of punitive or exemplary damages against the other in any Dispute and hereby waive any right or claim to punitive or exemplary damages they have now or which may arise in the future in connection with any Dispute whether the Dispute is resolved by arbitration or judicially.

12.4. Notices. Except as otherwise expressly provided herein, all notices hereunder shall be in writing and shall be delivered by telecopier, hand, overnight delivery or by mail. Notices given by mail shall be deemed to

have been given three (3) days after the date sent if sent by registered or certified mail, postage prepaid, and:

(i) if to the Borrower, to:

EMCORE Corporation
145 Belmont Avenue
Somerset, New Jersey 08873
Attn: Mr. Reuben F. Richards, Jr., President

(ii) if to the Bank, to:

First Union National Bank
1889 Highway 27
Edison, New Jersey 08817
Attn: Mr. Robert G. Murphy, Jr.

or in the case of either party, such other address as such party may, by written notice, received by the other party to this Agreement, have designated as its address for notices. Notices given by (i) telecopier shall be deemed to have been given when sent, (ii) hand shall be deemed to have been given the same day they have been sent and (iii) overnight delivery shall be deemed to have been given the day after they have been sent, in each case if properly addressed to the party to whom sent, at its address, as aforesaid. The Bank shall be entitled to reasonably rely upon any telephonic notices purportedly given pursuant to the terms of this Agreement and the Borrower shall hold the Bank harmless from any loss, cost or expense ensuing from any such reliance (other than that which results from the Bank's gross negligence or willful misconduct).

12.5. Appointment as Attorney-in-Fact.

(a) Powers. The Borrower hereby irrevocably constitutes and appoints the Bank with full power of substitution, as its true and lawful attorney-in-fact with full irrevocable power and authority in the place and stead of the Borrower and in the name of the Borrower or in its own name, from time to time in the Bank's discretion, for the purpose of carrying out the terms of this Agreement and, upon the occurrence and during the continuance of any Event of Default to take any and all appropriate action and to execute any and all documents and instruments which may be necessary or desirable to accomplish the purposes of this Agreement and the security interests granted herein, and without limiting the generality of the foregoing, the Borrower hereby gives the Bank the power and right (but not the obligation), on behalf of the Borrower, without notice to or assent by the Borrower, to do the following:

(i) in the case of any Account, upon the occurrence and during the continuance of an Event of Default, or in the case of any other Collateral, at any time when any Event of Default shall have occurred and be continuing, in the name of the Borrower or its own name, or otherwise, to open mail addressed to the Borrower, to take possession of and endorse and collect any checks, drafts, notes, acceptances or other instruments for the payment of moneys due under any Account, Instrument, General Intangible or contract right or with respect to any other Collateral and to file any claim or to take any other action or proceeding in any court of law or equity or otherwise deemed appropriate by the Bank for the purpose of collecting any and all such moneys due under any such Account, Instrument, General Intangible or contract right or with respect to any other Collateral whenever payable;

(ii) to pay or discharge taxes and liens levied or placed on or threatened against the Collateral, to effect any repairs or any insurance called for by the terms of this Security Agreement and to pay all or any part of the premiums therefor and the costs thereof; and

(iii) upon the occurrence and during the continuance of any Event of Default, (A) to direct any party liable for any payment under any of the Collateral to make payment of any and all moneys due or to become due thereunder directly to the Bank or as the Bank shall direct; (B) to ask or demand for, collect, receive payment of and receipt for, any and all moneys, claims and other amounts due or to become due at any time in respect of or arising out of any Collateral; (c) to sign and endorse any invoices, freight or express bills, bills of lading, storage or warehouse receipts, drafts against debtors, assignments, verifications, notices and other documents in connection with any of the Collateral; (D) to commence and prosecute any suits, actions or proceedings at law or in equity in any court of competent jurisdiction to collect the Collateral or any thereof and to enforce any other right in respect of any Collateral; (E) to defend any suit, action or proceeding brought against the Borrower with respect to any Collateral; (F) to settle, compromise or adjust any suit, action or proceeding described in clause (E) above and in connection therewith, to give such discharges or releases as the Bank may deem appropriate; and (G) generally, to sell, transfer, pledge and make any agreement with respect to

or otherwise deal with any of the Collateral as fully and completely as though the Bank was the absolute owner thereof for all purposes, and to do at the Bank's option and the Borrower's expense, at any time, or from time to time, all acts and things which the Bank deems necessary to protect, preserve or realize upon the Collateral and the liens granted hereunder and

to effect the intent of this Agreement, all as fully and effectively as the Borrower might do.

The Borrower hereby ratifies all that said attorney shall lawfully do or cause to be done by virtue hereof. This power of attorney is a power coupled with an interest and shall be irrevocable.

(b) Other Powers. The Borrower also authorizes the Bank, at any time and from time to time, to execute, in connection with the sale provided for in Section 13.4 hereof, any endorsements, assignments or other instruments of conveyance or transfer with respect to the Collateral.

(c) No Duty on Bank's Part. The powers conferred on the Bank hereunder are solely to protect its interests in the Collateral and shall not impose any duty upon the Bank to exercise any such powers. Neither the Bank nor any of its officers, directors, employees or agents shall be responsible to the Borrower for any act or failure to act hereunder, except for their own gross negligence or willful misconduct.

12.6. Costs, Expenses and Taxes. The Borrower agrees to pay on demand all out-of-pocket costs and expenses of the Bank (including the reasonable fees and out-of-pocket expenses of legal counsel for the Bank) in connection with the incurred by the Bank in connection with the administration of this Agreement and the other Loan Documents, any amendments thereto and the enforcement of the Loan Documents or any Collateral for any of the foregoing. All obligations provided for in this Section 12.6 shall survive any termination of this Agreement.

12.7. Captions. Section captions used in this Agreement are for convenience only, and shall not be deemed to be a part of this Agreement.

12.8. Venue; Governing Law. The Loan Documents have been delivered to the Bank, accepted by the Bank and executed in New Jersey and the Loan Documents shall be governed by and construed by the laws of the State of New Jersey. The Borrower hereby irrevocably consents and agrees to the jurisdiction of the courts of New Jersey, and further waives any and all obligations the Borrower may have to the venue of any action, claim, proceeding or counterclaim in connection with the Loan being paid in the Courts of New Jersey. The Borrower further agrees that any such suit, claim or other legal proceeding shall be brought in the courts of the State of New Jersey. The provisions of this paragraph are a material inducement for the Bank entering into this Agreement.

12.9. Remedies. All obligations of the Borrower and rights of the Bank expressed herein, and in the Loan Documents, shall be in addition to and not in limitation of those provided by applicable law.

12.10. Successors and Assigns. This Agreement shall be binding upon the Borrower, its successors, and assigns, and upon the Bank and its successors and assigns, and shall inure to the benefit of the Borrower, the Bank and their respective successors and assigns. However, the Borrower may not assign its rights or obligations under the Loan Documents and no third party shall have any interest therein.

12.11. Counterparts. This Agreement may be signed in counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument.

12.12. Survival. All representations and warranties of Borrower shall survive the execution and delivery of this Agreement.

12.13. Executed Certification. This Agreement was executed by the Borrower and delivered to the Bank in the State of New Jersey.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed as of the day and year first written above.

EMCORE CORPORATION,
a New Jersey corporation

By:/s/ Tom Werthan

Name: Tom Werthan
Title: CFO

FIRST UNION NATIONAL BANK

By:/s/ Robert G. Murphy, Jr.

Name: Robert G. Murphy, Jr.
Title: VP

Exhibit 10.1

$175,000,000

EMCORE CORPORATION

5% CONVERTIBLE SUBORDINATED NOTES DUE 2006

REGISTRATION RIGHTS AGREEMENT

May 7, 2001

Credit Suisse First Boston Corporation
Merrill Lynch, Pierce, Fenner & Smith Incorporated
First Union Securities, Inc.
c/o Credit Suisse First Boston Corporation
Eleven Madison Avenue
New York, New York 10010-3629

Dear Sirs:

EMCORE Corporation, a New Jersey corporation (the "COMPANY"), proposes to issue and sell to Credit Suisse First Boston Corporation, Merrill Lynch, Pierce, Fenner & Smith Incorporated and First Union Securities, Inc. (collectively, the "INITIAL PURCHASERS"), upon the terms set forth in a purchase agreement of even date herewith (the "PURCHASE AGREEMENT"), $175,000,000 aggregate principal amount of its 5% Convertible Subordinated Notes due 2006 (the "NOTES"). The Notes will be convertible into shares of common stock of the Company (the "COMMON STOCK") at the conversion price set forth in the Offering Circular dated May 1, 2001. The Notes will be issued pursuant to an Indenture, dated as of May 7, 2001 (the "INDENTURE"), by and between the Company and Wilmington Trust Company, as trustee (the "Trustee"). As an inducement to the Initial Purchasers to enter into the Purchase Agreement, the Company agrees with the Initial Purchasers, (i) for the benefit of the Initial Purchasers and (ii) for the benefit of the holders of the Notes and the Common Stock issuable upon conversion or provisional redemption of the Notes (collectively, the "SECURITIES") from time to time until such time as such Securities have been sold pursuant to a Shelf Registration Statement (as defined below) (each of the foregoing a "HOLDER" and, together, the "HOLDERS"), as follows:

1. SHELF REGISTRATION. The Company shall take the following actions:

(a) The Company shall promptly (but in no event more than 90 days after the first date of original issuance of the Notes (such 90th day being a "FILING DEADLINE")) file with the Commission and thereafter use its commercially reasonable efforts to cause to be declared effective no later than 180 days after the first date of original issuance of the Notes (such 180th day being an "EFFECTIVENESS DEADLINE") a registration statement (the "SHELF REGISTRATION STATEMENT") on an appropriate form under the Securities Act relating to the offer and sale of the Transfer Restricted Securities (as defined herein) by the Holders thereof from time to time in accordance with the methods of distribution set forth in the Shelf Registration Statement and Rule 415 under the Securities Act (hereinafter, the "SHELF REGISTRATION"); PROVIDED, HOWEVER, that

no Holder (other than an Initial Purchaser) shall be entitled to have the Securities held by it covered by such Shelf Registration Statement unless such Holder agrees in writing to be bound by all the provisions of this Agreement applicable to such Holder.

(b) The Company shall use its reasonable best efforts to keep the Shelf Registration Statement continuously effective in order to permit the prospectus included therein to be lawfully delivered by the Holders of the relevant Securities, for a period of two years (or for such longer period if extended pursuant to Section 2(h) below) from the date of its effectiveness or such shorter period that will terminate when all the Securities covered by the Shelf Registration Statement (i) have been sold pursuant thereto or (ii) may be sold pursuant to Rule 144(k) under the Securities Act (or any successor rule therefore) (in any case, such period being called the "SHELF REGISTRATION PERIOD"). The Company shall be deemed not to have used its reasonable best efforts to keep the Shelf Registration Statement effective during the requisite period if it voluntarily takes any action that would result in Holders of Securities covered thereby not being able to offer and sell such Securities during that period, unless such action is required by applicable law.

(c) Notwithstanding any other provisions of this Agreement to the contrary, the Company shall cause the Shelf Registration Statement

and the related prospectus and any amendment or supplement thereto, as of the effective date of the Shelf Registration Statement, amendment or supplement, (i) to comply in all material respects with the applicable requirements of the Securities Act and the rules and regulations of the Commission and (ii) not to contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

(d) Each Holder of Transfer Restricted Securities agrees that if such Holder wishes to sell Transfer Restricted Securities pursuant to a Shelf Registration Statement and related prospectus, it will do so only in accordance with this Section 1(d) and Section 2(b). Each Holder of Transfer Restricted Securities wishing to sell Transfer Restricted Securities pursuant to a Shelf Registration Statement and related prospectus agrees to deliver a written notice, substantially in the form of Annex A to the Offering Circular (a "NOTICE AND QUESTIONNAIRE") to the Company at least five (5) Business Days prior to any intended distribution of Transfer Restricted Securities under the Shelf Registration Statement (each such Holder delivering the Notice and Questionnaire, a "NOTICE HOLDER"). From and after the date the Shelf Registration Statement is declared effective, the Company shall, as promptly as practicable after the date a Notice and Questionnaire is delivered (i) if required by applicable law, file with the SEC a post-effective amendment to the Shelf Registration Statement or prepare and, if required by applicable law, file a supplement to the related prospectus or a supplement or amendment to any document incorporated therein by reference or file any other document required under the Securities Act so that the Holder delivering such Notice and Questionnaire is named as a selling securityholder in the Shelf Registration Statement and the related prospectus in such a manner as to permit such Holder to deliver such prospectus to purchasers of the Transfer Restricted Securities in accordance with applicable law and, if the Company shall file a post-effective amendment to the Shelf Registration Statement, use reasonable efforts to cause such post-effective amendment to be declared effective under the Securities Act as promptly as is practicable, but in any event by the date (the "Amendment Effectiveness Deadline Date") that is forty-five (45) days after the date such post-effective amendment is required by this clause to be filed; (ii) provide such Holder copies of any documents filed pursuant to Section 1(d)(i); and (iii) notify such Holder as promptly as practicable after the effectiveness under the Securities Act of any post-effective amendment filed pursuant to Section 1(d)(i); provided that if such Notice and Questionnaire is delivered

during a Deferral Period, the Company shall so inform the Holder delivering such Notice and Questionnaire and shall take the actions set forth in clauses (i), (ii) and (iii) above upon expiration of the Deferral Period in accordance with Section 2(b). Notwithstanding anything contained herein to the contrary, (i) the Company shall be under no obligation to name any Holder that is not a Notice Holder as a selling securityholder in any Registration Statement or related prospectus and (ii) the Amendment Effectiveness Deadline Date shall be extended by up to ten (10) days from the expiration of a Deferral Period (and the Company shall incur no obligation to pay Additional Interest during such extension) if such Deferral Period is in effect on the Amendment Effectiveness Deadline Date; and provided further, that the Company shall not be obligated to file more than one (1) post-effective amendment or supplement in any twenty (20) day period following the date the Shelf Registration Statement is declared effective for the purpose of naming Holders as selling securityholders who were not named in the Shelf Registration Statement at the time of effectiveness. Any Holder who, subsequent to the date the Registration Statement is declared effective, provides a Notice and Questionnaire required by this Section 1(d) pursuant to the provisions of this Section (whether or not such Holder has supplied the Notice and Questionnaire at the time the Shelf Registration Statement was declared effective) shall be named as a selling securityholder in the Shelf Registration Statement and related prospectus in accordance with the requirements of this Section 1(d).

2. REGISTRATION PROCEDURES. In connection with any Shelf Registration contemplated by Section 1 hereof, the following provisions shall apply:

(a) The Company shall (i) furnish to each Initial Purchaser, prior to the filing thereof with the Commission, a copy of the Shelf Registration Statement and each amendment thereof and each supplement, if any, to the prospectus included therein and, in the event that an Initial Purchaser (with respect to any portion of an unsold allotment from the original offering) is participating in the Shelf Registration

Statement, the Company shall use its reasonable efforts to reflect in each such document, when so filed with the Commission, such comments as such Initial Purchaser reasonably may propose within a reasonable period of time; (ii) include the names of the Holders who propose to sell Securities pursuant to the Shelf Registration Statement, as selling shareholders.

(b) Upon (A) the issuance by the SEC of a stop order suspending the effectiveness of a Shelf Registration Statement or the initiation of proceedings with respect to a Shelf Registration Statement under Section 8(d) or 8(e) of the Securities Act, (B) the occurrence of any event or the existence of any fact (a "Material Event") as a result of which any Registration Statement shall contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading, or any prospectus shall contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, or (C) the occurrence or existence of any pending corporate development, public filing with the SEC or other similar event with respect to the Company that, in the reasonable discretion of the Company, makes it appropriate to suspend the availability of a Shelf Registration Statement and the related prospectus, (i) in the case of clause (B) above, subject to the next sentence, as promptly as practicable prepare and file, if necessary pursuant to applicable law, a post-effective amendment to such Registration Statement or a supplement to the related prospectus or any document incorporated therein by reference or file any other required document that would be incorporated by reference into such Registration Statement and prospectus so that such Registration Statement does not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading, and such prospectus does not contain

any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, and, in the case of a post-effective amendment to a Registration Statement, subject to the next sentence, use reasonable efforts to cause it to be declared effective as promptly as is practicable, and (ii) give notice to the Notice Holders that the availability of the Shelf Registration Statement is suspended (a "Deferral Notice") and, upon receipt of any Deferral Notice, each Notice Holder agrees not to sell any Transfer Restricted Securities pursuant to the Registration Statement until such Notice Holder's receipt of copies of the supplemented or amended prospectus provided for in clause (i) above, or until it is advised in writing by the Company that the prospectus may be used, and has received copies of any additional or supplemental filings that are incorporated or deemed incorporated by reference in such prospectus. The Company will use reasonable efforts to ensure that the use of the prospectus may be resumed (x) in the case of clause (A) above, as promptly as is practicable, (y) in the case of clause (B) above, as soon as, in the sole judgment of the Company, public disclosure of such Material Event would not be prejudicial to or contrary to the interests of the Company or, if necessary to avoid unreasonable burden or expense, as soon as practicable thereafter and (z) in the case of clause (C) above, as soon as, in the discretion of the Company, such suspension is no longer appropriate. The Company shall be entitled to exercise its right under this Section 2(b) to suspend the availability of the Shelf Registration Statement or any prospectus, without incurring or accruing any obligation to pay Additional Interest pursuant to Section 6, for one or more periods not to exceed 90 consecutive days and not to exceed, in the aggregate, 120 days in any 12-month period (such period, during which the availability of the Registration Statement and any prospectus is suspended being a "Deferral Period").

(c) The Company shall make every reasonable effort to obtain the withdrawal at the earliest possible time, of any order suspending the effectiveness of the Shelf Registration Statement.

(d) The Company shall furnish to each Notice Holder included within the coverage of the Shelf Registration, without charge, at least one copy of the Shelf Registration Statement and any post-effective amendment thereto (other than an amendment or supplement solely with respect to including the name of a Notice Holder in the Shelf Registration Statement, in which case, the Company shall furnish such amendment solely to such Notice Holder), including financial statements and schedules.

(e) The Company shall, during the Shelf Registration Period, deliver to each Notice Holder included within the coverage of the Shelf Registration, without charge, as many copies of the prospectus (including each preliminary prospectus) included in the Shelf Registration Statement and any amendment or supplement thereto as such person may reasonably request. The Company consents, subject to the provisions of this Agreement, to the use of the prospectus or any amendment or supplement thereto by each Notice Holder of the Securities in connection with the offering and sale of the Securities covered by the prospectus, or any amendment or supplement thereto, included in the Shelf Registration Statement.

(f) Prior to any public offering of the Securities pursuant to the Shelf Registration Statement the Company shall register or qualify or cooperate with the Notice Holders and their respective counsel in connection with the registration or qualification of the Securities for offer and sale under the securities or "blue sky" laws of such states of the United States as any Notice Holder reasonably requests in writing and do any and all other acts or things necessary or advisable to enable the offer and sale in such jurisdictions of the Securities covered by the Shelf Registration Statement; PROVIDED, HOWEVER, that the Company shall not be required to (i) qualify

generally to do business in any jurisdiction where it is not then so qualified or (ii) take any action which would subject it to general service of process or to taxation in any jurisdiction where it is not then so subject.

(g) The Company shall cooperate with the Notice Holders to facilitate the timely preparation and delivery of certificates representing the Securities to be sold pursuant to the Shelf Registration Statement free of any restrictive legends and in such denominations and registered in such names as the Notice Holders may request in writing a reasonable period of time prior to sales of the Securities pursuant to the Shelf Registration Statement.

(h) If the Company notifies the Initial Purchasers and the Holders in accordance with Section 2(b) above to suspend the use of the prospectus until the requisite changes to the prospectus have been made, then the Initial Purchasers and the Holders shall suspend use of such prospectus, and the period of effectiveness of the Shelf Registration Statement provided for in Section 1(b) above shall be extended by the number of days from and including the date of the giving of such notice to and including the date when the Initial Purchasers and the Holders shall have received such amended or supplemented prospectus pursuant to this Section 2(h).

(i) Not later than the effective date of the Shelf Registration Statement, the Company will provide a CUSIP number for the Notes and the Common Stock registered under the Shelf Registration Statement, and provide the trustee with printed certificates for such Notes, in a form eligible for deposit with The Depository Trust Company.

(j) The Company will comply with all rules and regulations of the Commission to the extent and so long as they are applicable to the Shelf Registration and will make generally available to its security holders (or otherwise provide in accordance with Section 11(a) of the Securities Act) an earnings statement satisfying the provisions of Section 11(a) of the Securities Act, no later than 45 days after the end of a 12-month period (or 90 days, if such period is a fiscal year) beginning with the first month of the Company's first fiscal quarter commencing after the effective date of the Shelf Registration Statement, which statement shall cover such 12-month period; provided, that if the Company files the reports required by this Section 3(j) with the SEC and such reports are publicly available, it shall be deemed to have satisfied its obligation to furnish such reports to its securityholders pursuant to this Section 3(j).

(k) The Company shall cause the Indenture to be qualified under the Trust Indenture Act of 1939, as amended, in a timely manner and containing such changes, if any, as shall be necessary for such qualification. In the event that such qualification would require the appointment of a new trustee under the Indenture, the Company shall appoint a new trustee thereunder pursuant to the applicable provisions of the Indenture.

(l) The Company may require each Holder that proposes to sell Securities pursuant to the Shelf Registration Statement to furnish to

the Company a Notice and Questionnaire containing such information regarding the Holder and the distribution of the Securities as the Company may from time to time reasonably require for inclusion in the Shelf Registration Statement, and the Company may exclude from such registration the Securities of any Holder that unreasonably fails to furnish such information within a reasonable time after receiving such request.

(m) The Company shall enter into such customary agreements (including, if requested, an underwriting agreement in customary form) and take all such other action, if any, as any Holder shall reasonably request in order to facilitate the disposition of the Securities pursuant to the Shelf Registration.

(n) Subject to the execution of a confidentiality agreement reasonably acceptable to the Company, the Company shall (i) make reasonably available for inspection by the Holders, any underwriter participating in any disposition pursuant to the Shelf Registration Statement and any attorney, accountant or other agent retained by the Holders or any such underwriter all relevant financial and other records, pertinent corporate documents and properties of the Company and (ii) cause the Company's officers, directors, employees, accountants and auditors to supply all relevant information reasonably requested by the Holders or any such underwriter, attorney, accountant or agent in connection with the Shelf Registration Statement, in each case, as shall be reasonably necessary to enable such persons, to conduct a reasonable investigation within the meaning of Section 11 of the Securities Act; PROVIDED, HOWEVER, that the foregoing inspection and information gathering shall be coordinated on behalf of the Initial Purchasers by you and on behalf of the other parties, by one counsel designated by and on behalf of such other parties as described in Section 3 hereof.

(o) The Company, if requested by any Notice Holder covered by the Shelf Registration Statement, shall cause (i) its counsel to deliver an opinion and updates thereof relating to the Securities in customary form addressed to such Notice Holders and the managing underwriters, if any, thereof and dated, in the case of the initial opinion, the effective date of the Shelf Registration Statement (it being agreed that the matters to be covered by such opinion shall include, without limitation, the due incorporation and good standing of the Company and its subsidiaries; the qualification of the Company and its subsidiaries to transact business as foreign corporations; the due authorization, execution and delivery of the relevant agreement of the type referred to in Section 2(m) hereof; the due authorization, execution, authentication and issuance, and the validity and enforceability, of the Securities; the absence, to such counsel's knowledge, of material legal or governmental proceedings involving the Company and its subsidiaries; the absence of governmental approvals required to be obtained in connection with the Shelf Registration Statement, the offering and sale of the Securities, or any agreement of the type referred to in Section 2(m) hereof; the compliance as to form of the Shelf Registration Statement and any documents incorporated by reference therein and of the Indenture with the requirements of the Securities Act and the Trust Indenture Act, respectively; and, as of the date of the opinion and as of the effective date of the Shelf Registration Statement or most recent post-effective amendment thereto, as the case may be, the absence from the Shelf Registration Statement and the prospectus included therein, as then amended or supplemented, and from any documents incorporated by reference therein of an untrue statement of a material fact or the omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading (in the case of any such documents, in the light of the circumstances existing at the time that such documents were filed with the Commission under the Exchange Act); (ii) its officers to execute and deliver all customary documents and certificates and updates thereof reasonably requested by any underwriters of the Securities and (iii) its independent public accountants and the independent public accountants with respect to any other entity for which financial information is provided in the Shelf Registration Statement to provide to the Notice Holders and any underwriter therefor a comfort letter in customary form and covering matters of the type customarily covered in comfort letters in connection with primary underwritten offerings, subject to receipt of appropriate documentation as contemplated, and only if permitted, by Statement of Auditing Standards No. 72.

(p) The Company shall use its reasonable best efforts to take all other steps necessary to effect the registration of the Securities covered by the Shelf Registration Statement contemplated hereby.

3. REGISTRATION EXPENSES. (a) Subject to Section 8 hereof, all expenses incident to the Company's performance of and compliance with this Agreement will be borne by the Company, regardless of whether the Shelf Registration Statement is ever filed or becomes effective, including without limitation;

(i) all registration and filing fees and expenses;

(ii) all fees and expenses of compliance with federal securities and state "blue sky" or securities laws;

(iii) all expenses of printing (including printing of prospectuses), messenger and delivery services and telephone;

(iv) all fees and disbursements of counsel for the Company;

(v) all application and filing fees in connection with listing the Securities on a national securities exchange or automated quotation system pursuant to the requirements hereof; and

(vi) all fees and disbursements of independent certified public accountants of the Company (including the expenses of any special audit and comfort letters required by or incident to such performance).

The Company will bear its internal expenses (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), the expenses of any annual audit and the fees and expenses of any person, including special experts, retained by the Company.

(b) In connection with the Shelf Registration Statement required by this Agreement, the Company will reimburse the Initial Purchasers and the Notice Holders of Transfer Restricted Securities who are selling or reselling Securities pursuant to the "Plan of Distribution" contained in the Shelf Registration Statement for the reasonable fees and disbursements of not more than one counsel, who shall be Latham & Watkins unless another firm shall be chosen by the Notice Holders of a majority in principal amount of the Transfer Restricted Securities for whose benefit such Shelf Registration Statement is being prepared.

4. INDEMNIFICATION. (a) The Company agrees to indemnify and hold harmless each Notice Holder and each person, if any, who controls such Notice Holder within the meaning of the Securities Act or the Exchange Act (each Notice Holder and such controlling persons are referred to collectively as the "INDEMNIFIED PARTIES") from and against any losses, claims, damages or liabilities, joint or several, or any actions in respect thereof (including, but not limited to, any losses, claims, damages, liabilities or actions relating to purchases and sales of the Securities) to which each Indemnified Party may become subject under the Securities Act, the Exchange Act or otherwise, insofar as such losses, claims, damages, liabilities or actions arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in the Shelf Registration Statement or prospectus or in any amendment or supplement thereto or in any preliminary prospectus relating to the Shelf Registration, or arise out of, or are based upon, the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and shall reimburse, as incurred, the Indemnified Parties for any legal or other expenses reasonably incurred by them in connection with investigating or defending any such loss, claim, damage, liability or action in respect thereof; PROVIDED, HOWEVER, that (i) the Company shall not be liable in any such case to the extent that such loss, claim, damage or liability arises out of or is based upon any untrue statement or alleged untrue statement or omission or alleged omission made in the Shelf Registration Statement or prospectus or in any amendment or supplement thereto or in any preliminary prospectus relating to the Shelf Registration in reliance upon and in conformity with written information pertaining to such Notice Holder and furnished to the Company by or on behalf of such Notice

Holder specifically for inclusion therein and (ii) with respect to any untrue statement or omission or alleged untrue statement or omission made in any preliminary prospectus relating to the Shelf Registration Statement, the indemnity agreement contained in this subsection (a) shall not inure to the benefit of any Notice Holder from whom the person asserting any such losses, claims, damages or liabilities purchased the Securities concerned, to the extent that a prospectus relating to such Securities was required to be delivered by

such Notice Holder under the Securities Act in connection with such purchase and any such loss, claim, damage or liability of such Notice Holder results from the fact that there was not sent or given to such person, at or prior to the written confirmation of the sale of such Securities to such person, a copy of the final prospectus if the Company had previously furnished copies thereof to such Notice Holder; PROVIDED FURTHER, HOWEVER, that this indemnity agreement will be in addition to any liability which the Company may otherwise have to such Indemnified Party. The Company shall also indemnify underwriters, their officers and directors and each person who controls such underwriters within the meaning of the Securities Act or the Exchange Act to the same extent as provided above with respect to the indemnification of the Notice Holders of the Securities if requested by such Notice Holders.

(b) Each Notice Holder, severally and not jointly, will indemnify and hold harmless the Company and each person, if any, who controls the Company within the meaning of the Securities Act or the Exchange Act from and against any losses, claims, damages or liabilities or any actions in respect thereof, to which the Company or any such controlling person may become subject under the Securities Act, the Exchange Act or otherwise, insofar as such losses, claims, damages, liabilities or actions arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in the Shelf Registration Statement or prospectus or in any amendment or supplement thereto or in any preliminary prospectus relating to the Shelf Registration, or arise out of or are based upon the omission or alleged omission to state therein a material fact necessary to make the statements therein not misleading, but in each case only to the extent that the untrue statement or omission or alleged untrue statement or omission was made in reliance upon and in conformity with written information pertaining to such Notice Holder and furnished to the Company by or on behalf of such Notice Holder specifically for inclusion therein; and, subject to the limitation set forth immediately preceding this clause, shall reimburse, as incurred, the Company for any legal or other expenses reasonably incurred by the Company or any such controlling person in connection with investigating or defending any loss, claim, damage, liability or action in respect thereof. This indemnity agreement will be in addition to any liability which such Notice Holder may otherwise have to the Company or any of its controlling persons.

(c) Promptly after receipt by an indemnified party under this Section 4 of notice of the commencement of any action or proceeding (including a governmental investigation), such indemnified party will, if a claim in respect thereof is to be made against the indemnifying party under this Section 4, notify the indemnifying party of the commencement thereof; but the omission so to notify the indemnifying party will not, in any event, relieve the indemnifying party from any obligations to any indemnified party other than the indemnification obligation provided in paragraph (a) or (b) above. In case any such action is brought against any indemnified party, and it notifies the indemnifying party of the commencement thereof, the indemnifying party will be entitled to participate therein and, to the extent that it may wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel reasonably satisfactory to such indemnified party (who shall not, except with the consent of the indemnified party, be counsel to the indemnifying party), and after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof the indemnifying party will not be liable to such indemnified party under this Section 4 for any legal or other expenses, other than reasonable costs of investigation, subsequently incurred by such indemnified party in connection with the defense thereof. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement of any pending or threatened action in respect of which any indemnified party is or could have been a party and indemnity could have been sought hereunder by such indemnified party unless such settlement includes an unconditional release of such indemnified party from all liability on any claims

that are the subject matter of such action, and does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 4 is unavailable or insufficient to hold harmless an indemnified party under subsections (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the losses, claims, damages or liabilities (or actions in respect thereof) referred to in subsection (a) or (b) above (i) in such proportion as is appropriate to reflect the relative benefits received by the indemnifying party or parties on the one hand and the indemnified party on the other from the exchange of the Securities, pursuant to the Shelf Registration, or (ii) if the allocation provided by the foregoing clause (i) is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the indemnifying party or parties on the one hand and the indemnified party on the other in connection with the

statements or omissions that resulted in such losses, claims, damages or liabilities (or actions in respect thereof) as well as any other relevant equitable considerations. The relative fault of the parties shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or such Notice Holder or such other indemnified party, as the case may be, on the other, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any action or claim which is the subject of this subsection (d). Notwithstanding any other provision of this Section 4(d), the Notice Holders shall not be required to contribute any amount in excess of the amount by which the net proceeds received by such Notice Holders from the sale of the Securities pursuant to the Shelf Registration Statement exceeds the amount of damages which such Notice Holders have otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this paragraph (d), each person, if any, who controls such indemnified party within the meaning of the Securities Act or the Exchange Act shall have the same rights to contribution as such indemnified party and each person, if any, who controls the Company within the meaning of the Securities Act or the Exchange Act shall have the same rights to contribution as the Company.

(e) The agreements contained in this Section 4 shall survive the sale of the Securities pursuant to the Shelf Registration Statement and shall remain in full force and effect, regardless of any termination or cancellation of this Agreement or any investigation made by or on behalf of any indemnified party.

5. HOLDERS OBLIGATIONS. Each Holder agrees, by acquisition of the Transfer Restricted Securities, that no Holder of Transfer Restricted Securities shall be entitled to sell any of such Transfer Restricted Securities pursuant to a Registration Statement or to receive a prospectus relating thereto, unless such Holder has furnished the Company with a Notice and Questionnaire as required pursuant to Section 1(d) hereof and the information set forth in the next sentence. Each Notice Holder agrees promptly to furnish to the Company all information required to be disclosed in order to make the information previously furnished to the Company by such Notice Holder not misleading and any other information regarding such Notice Holder and the distribution of such Transfer Restricted Securities as the Company may from time to time reasonably request. Any sale of any Transfer Restricted Securities by any Holder shall constitute a representation and warranty by such Holder that the information relating to such Holder and its plan of distribution is as set forth in the prospectus delivered by such Holder in connection with such disposition, that such prospectus does not as of

the time of such sale contain any untrue statement of a material fact relating to or provided by such Holder or its plan of distribution and that such prospectus does not as of the time of such sale omit to state any material fact relating to or provided by such Holder or its plan of distribution necessary to make the statements in such prospectus, in the light of the circumstances under which they were made, not misleading. Each Holder agrees that within ten (10) business days of any sale, disposition or other transfer of Securities, whether pursuant to a Registration Statement or exemption from registration under the Securities Act, such Holder shall provide written notice to the Company specifying the amount of Securities sold, disposed of or transferred and the name and address of the transferree of such Securities.

6. ADDITIONAL INTEREST UNDER CERTAIN CIRCUMSTANCES. (a) Additional interest (the "ADDITIONAL INTEREST") with respect to the Notes shall be assessed as follows if any of the following events occur (each such event in clauses (i) through (iv) below being herein called a "REGISTRATION DEFAULT"):

(i) the Shelf Registration Statement required by this Agreement is not filed with the Commission on or prior to the Filing Deadline;

(ii) the Shelf Registration Statement required by this Agreement is not declared effective by the Commission on or prior to the applicable Effectiveness Deadline;

(iii) the Company fails with respect to a Holder that supplies a Notice and Questionnaire to supplement the Shelf Registration Statement in a timely manner in order to name additional selling shareholders; or

(iv) the Shelf Registration Statement required by this Agreement has been declared effective by the Commission but (A) the Shelf Registration Statement thereafter ceases to be effective or (B) the Shelf Registration Statement or the related prospectus ceases to be usable in connection with resales of Transfer Restricted Securities during the periods specified herein (other than pursuant to Section 1(c) hereof) and (1) the Company fails to cure the Registration Default within five business days by a post-effective amendment or a report filed pursuant to the Exchange Act or (2) if applicable, the Company does not terminate the Deferral Period by the 90th day, as the case may be.

Each of the foregoing will constitute a Registration Default whatever the reason for any such event and whether it is voluntary or involuntary or is beyond the control of the Company or pursuant to operation of law or as a result of any action or inaction by the Commission.

Additional Interest shall accrue daily on the Notes over and above the interest set forth in the title of the Notes from and including the date on which any such Registration Default shall occur to, but excluding, the date on which all such Registration Defaults have been cured, at a rate of 0.50% per annum for the notes (the "ADDITIONAL INTEREST RATE") and, if applicable, on an equivalent basis per share (subject to adjustment in the case of stock splits, stock recombinations, stock dividends and the like) of Common Stock issuable upon conversion of the Notes.

(b) A Registration Default referred to in Section 6(a)(iv) hereof shall be deemed not to have occurred and be continuing in relation to the Shelf Registration Statement or the related prospectus if (i) such Registration Default has occurred solely as a result of (x) the filing of a post-effective amendment to the Shelf Registration Statement to incorporate annual audited financial information with respect to the Company where such post-effective amendment is not yet effective and needs to be declared effective to permit Notice Holders to use the related prospectus or (y) other material events, with respect to the Company that would need to be described in the Shelf Registration Statement or the related prospectus and (ii) in the case of clause (y), the Company is proceeding promptly and in good faith to amend or supplement the Shelf Registration Statement and related prospectus to describe such events; PROVIDED,

HOWEVER, that in any case if such Registration Default occurs for a continuous period in excess of 30 days, Additional Interest shall be payable in accordance with the above paragraph from the day such Registration Default occurs until such Registration Default is cured.

(c) Any amounts of Additional Interest due pursuant to Section 6(a) will be payable in cash on the regular interest payment dates with respect to the Notes. The amount of Additional Interest will be determined by multiplying the applicable Additional Interest Rate by the principal amount of the Notes and further multiplied by a fraction, the numerator of which is the number of days such Additional Interest Rate was applicable during such period (determined on the basis of a 360-day year comprised of twelve 30-day months), and the denominator of which is 360.

(d) "TRANSFER RESTRICTED SECURITIES" means each Security until (i) the date on which such Security has been effectively registered under the Securities Act and disposed of in accordance with the Shelf Registration Statement or (ii) the date on which such Security is distributed to the public pursuant to Rule 144 under the Securities Act or is saleable pursuant to Rule 144(k) under the Securities Act.

7. RULES 144 AND 144A. The Company shall use its best efforts to file the reports required to be filed by it under the Securities Act and the Exchange Act in a timely manner and, if at any time the Company is not required to file such reports, it will, upon the request of any Holder, make publicly available other information so long as necessary to permit sales of their securities pursuant to Rules 144 and 144A. The Company covenants that it will take such further action as any Holder may reasonably request, all to the extent required from time to time to enable such Holder to sell Securities without registration under the Securities Act within the limitation of the exemptions provided by Rules 144 and 144A (including the requirements of Rule 144A(d)(4)). The Company will provide a copy of this Agreement to prospective purchasers of Securities identified to the Company by the Initial Purchasers upon request. Upon the request of any Holder, the Company shall deliver to such Holder a written statement as to whether it has complied with such requirements. Notwithstanding the foregoing, nothing in this Section 7 shall be deemed to require the Company to register any of its securities pursuant to the Exchange Act.

8. UNDERWRITTEN REGISTRATIONS. If any of the Transfer Restricted Securities covered by the Shelf Registration are to be sold in an underwritten offering, the investment banker or investment bankers and manager or managers that will administer the offering ("MANAGING UNDERWRITERS") will be selected by the Notice Holders of a majority in aggregate principal amount of such Transfer Restricted Securities to be included in such offering (provided that the Holders of Common Stock issued upon conversion of Notes shall not be deemed Holders of Common Stock, but shall be deemed to be Holders of the aggregate principal amount of Notes from which such Common Stock was converted).

No person may participate in any underwritten registration hereunder unless such person (i) agrees to sell such person's Transfer Restricted Securities on the basis reasonably provided in any underwriting arrangements approved by the persons entitled hereunder to approve such arrangements and (ii) completes and executes all questionnaires, powers of attorney, indemnities, underwriting agreements and other documents reasonably required under the terms of such underwriting arrangements.

Notwithstanding any other provisions of this Agreement to the contrary, the Company shall not be required to pay the expenses of an underwritten offering of Transfer Restricted Securities pursuant to this Section 8 unless such underwritten offering is for Transfer Restricted Securities in the aggregate principal amount of at least $50,000,000 and shall not be required to pay any underwriter discount, commission or similar fees related to the sale of the Transfer Restricted Securities.

9. MISCELLANEOUS.

(a) REMEDIES. The Company acknowledges and agrees that any failure by the Company to comply with its obligations under Section 1 hereof may result in material irreparable injury to the Initial Purchasers or the Holders for which there is no adequate remedy at law, that it will not be possible to measure damages for such injuries precisely and that, in the event of any such failure, the Initial Purchasers or any Holder may obtain such relief as may be required to specifically enforce the Company's obligations under Sections 1 hereof. The Company further agrees to waive the defense in any action for specific performance that a remedy at law would be adequate.

(b) NO INCONSISTENT AGREEMENTS. The Company will not on or after the date of this Agreement enter into any agreement with respect to its securities that is inconsistent with the rights granted to the Holders in this Agreement or otherwise conflicts with the provisions hereof. The rights granted to the Holders hereunder do not in any way conflict with and are not inconsistent with the rights granted to the holders of the Company's securities under any agreement in effect on the date hereof.

(c) AMENDMENTS AND WAIVERS. The provisions of this Agreement may not be amended, modified or supplemented, and waivers or consents to departures from the provisions hereof may not be given, except by the Company and the written consent of the Holders of a majority in principal amount of the Transfer Restricted Securities (provided that the Holders of Common Stock issued upon conversion of Notes shall not be deemed Holders of Common Stock, but shall be deemed to be Holders of the aggregate principal amount of Notes from which such Common Stock was converted) affected by such amendment, modification, supplement, waiver or consents.

(d) NOTICES. All notices and other communications provided for or permitted hereunder shall be made in writing by hand delivery, first-class mail, facsimile transmission, or air courier which guarantees overnight delivery:

(1) if to a Holder, that is not a Notice Holder, at the most current address given by such Holder to the Company.

(2) if to a Notice Holder, at the most current address given by such Holder to the Company in a Notice and Questionnaire or any amendment thereto.

(3) if to the Initial Purchasers;

Credit Suisse First Boston Corporation
Eleven Madison Avenue
New York, NY 10010-3629
Fax No.: (212) 325-8278
Attention: Transactions Advisory Group

with a copy to:

Latham & Watkins
885 Third Avenue

New York, NY 10022-4802
Fax No.: (212) 906-1200
Attention: Marc D. Jaffe, Esq.

(4) if to the Company, at its address as follows:

EMCORE Corporation
145 Belmont Drive
Somerset, NJ 08873
Fax No.: (732) 271-9686
Attention: Howard Brodie, Esq.

with a copy to:

White & Case LLP
200 South Biscayne Boulevard
Miami, FL 33131
Fax No.: (305) 358-5744
Attention: Jorge Freeland, Esq.
Steven L. Bray, Esq.

All such notices and communications shall be deemed to have been duly given: at the time delivered by hand, if personally delivered; three business days after being deposited in the mail, postage prepaid, if mailed; when receipt is acknowledged by recipient's facsimile machine operator, if sent by facsimile transmission; and on the day delivered, if sent by overnight air courier guaranteeing next day delivery.

(e) THIRD PARTY BENEFICIARIES. The Holders shall be third party beneficiaries to the agreements made hereunder between the Company, on the one hand, and the Initial Purchasers, on the other hand, and shall have the right to enforce such agreements directly to the extent they may deem such enforcement necessary or advisable to protect their rights or the rights of Holders hereunder.

(f) SUCCESSORS AND ASSIGNS. This Agreement shall be binding upon the Company and its successors and assigns.

(g) COUNTERPARTS. This Agreement may be executed in any number of counterparts and by the parties hereto in separate counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement.

(h) HEADINGS. The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

(i) GOVERNING LAW. THIS AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAWS.

(j) SEVERABILITY. If any one or more of the provisions contained herein, or the application thereof in any circumstance, is held invalid, illegal or unenforceable, the validity, legality and enforceability of any such provision in every other respect and of the remaining provisions contained herein shall not be affected or impaired thereby.

(k) SECURITIES HELD BY THE COMPANY. Whenever the consent or approval of Holders of a specified percentage of principal amount of Securities is required hereunder, Securities held by the Company or its affiliates (other than subsequent Holders of Securities if such subsequent Holders are deemed to be affiliates solely by reason of their holdings of such Securities) shall not be counted in determining whether such consent or approval was given by the Holders of such required percentage.

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company a counterpart hereof, whereupon this instrument, along with all counterparts, will become a binding agreement among the several Initial Purchasers and the Company in accordance with its terms.

Very truly yours,

EMCORE CORPORATION

By: /s/ Howard Brodie

Name: Howard Brodie
Title: Vice President

The foregoing Registration Rights Agreement is hereby confirmed and accepted as of the date first above written.

CREDIT SUISSE FIRST BOSTON CORPORATION
MERRILL LYNCH & CO.
FIRST UNION SECURITIES, INC.

By: CREDIT SUISSE FIRST BOSTON CORPORATION

By /s/ Arunas E. Gudaitis

Name: Arunas E. Gudaitis
Title: Director and Counsel