

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

KLA-TENCOR CORPORATION
(Exact name of registrant as specified in its charter)

Delaware 04-2564110
(State or other jurisdiction (I.R.S. Employer Identification No.)
of incorporation or organization)

160 Rio Robles, San Jose, California 95134
(Address of principal executive offices) (Zip Code)

KLA-TENCOR 401(K) PLAN
(Full title of the plan)

Stuart J. Nichols
Vice President and General Counsel
KLA-Tencor Corporation
160 Rio Robles, San Jose, California 95134
(Name and address of agent for service)

Telephone number, including area code, of agent for service: (408) 875-3000

Copies to:

Larry W. Sonsini, Esq.
Christine L. Richardson, Esq.
Wilson Sonsini Goodrich & Rosati, PC
650 Page Mill Road
Palo Alto, California 94304

CALCULATION OF REGISTRATION FEE

<TABLE>
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Title of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price Per Share*	Proposed Maximum Aggregate Offering Price*	Amount of Registration Fee*
<S> Common Stock, \$0.001 par value**	<C> 1,500,000 shares	<C> \$27.125	<C> \$40,687,500	<C> \$10,741.50

</TABLE>

* Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) under the Securities Act of 1933, on the basis of \$27.125 per share, the average of the high and low prices per share of the Common Stock on the NASDAQ National Market on November 10, 2000.

** Associated with the Common Stock are Common Stock Purchase Rights that will not be exercisable until the occurrence of certain prescribed events, none of which has occurred. In addition, pursuant to Rule 416(c) under the Securities Act of 1933, this registration statement also covers an indeterminate amount of interests to be offered or sold pursuant to the KLA-Tencor 401(k) Plan described herein.

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE

The following documents are incorporated by reference in this registration statement: (i) the latest annual report of KLA-Tencor Corporation (the "Registrant") filed pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"); (ii) all other reports filed by the Registrant pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by the annual report referred to in clause (i) above; and (iii) the description of the Registrant's common stock set forth in the Registrant's Registration Statement on Form 8-A relating thereto, including any amendment or report filed for the purpose of updating such

description. All documents filed by the Registrant or the KLA-Tencor 401(k) Plan, as amended, after the date of this registration statement pursuant to Sections 13(a), 13(c), 14, and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment (that indicates all securities offered have been sold or deregisters all securities then remaining unsold), shall be deemed to be incorporated by reference in this registration statement and to be a part hereof from the date of filing of such documents.

ITEM 4. DESCRIPTION OF SECURITIES

Inapplicable.

ITEM 5. INTERESTS OF NAMED EXPERTS AND COUNSEL

Inapplicable.

ITEM 6. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 145(a) of the Delaware General Corporation Law (the "DGCL") provides in relevant part that "[a] corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that he is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with such action, suit or proceeding if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful." With respect to derivative actions, Section 145(b) of the DGCL provides in relevant part that "[a] corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor... [by reason of his service in one of the capacities specified in the preceding sentence] against expenses (including attorneys' fees) actually and reasonably incurred by him in connection with the defense or settlement of such action or suit if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been

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adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper."

The Registrant's Amended and Restated Certificate of Incorporation provides that to the fullest extent permitted by the DGCL, no director of the Registrant shall be personally liable to the Registrant or its stockholders for monetary damages for breach of fiduciary duty as a director. The Amended and Restated Certificate of Incorporation also provides that no amendment or repeal of such provision shall apply to or have any effect on the right to indemnification permitted thereunder with respect to claims arising from acts or omissions occurring in whole or in part before the effective date of such amendment or repeal whether asserted before or after such amendment or repeal.

The Registrant's Bylaws provide that the Registrant shall indemnify to the fullest extent permitted by the DGCL each of its directors, officers, employees and other agents against expenses actually and reasonably incurred in connection with any proceeding arising by reason of the fact that such person is or was an agent of the Registrant.

The Registrant has entered into indemnification agreements with its directors and executive officers and intends to enter into indemnification agreements with any new directors and executive officers in the future.

ITEM 7. EXEMPTION FROM REGISTRATION CLAIMED

Inapplicable.

ITEM 8. EXHIBITS

4.1 KLA-Tencor 401(k) Plan (July 1, 1997 Restatement), as amended by Amendments No. 1 through 5 thereto (and incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-8 filed on September 26, 2000, Commission File No. 333-46598).

5.1 Undertaking re Status of Favorable Determination Letter Covering the Plan.

The Registrant has received a favorable determination letter from the Internal Revenue Service (the "IRS") concerning the qualification of the KLA-Tencor 401(k) Plan (the "Plan") under Section 401(a) and related provisions of the Internal Revenue Code of 1986, as amended. The Registrant will submit any future material amendments to the Plan to the IRS with a request for a favorable determination that the Plan, as amended, continues to so qualify.

23.1 Consent of PricewaterhouseCoopers LLP.

24.1 Power of Attorney of Directors.

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ITEM 9. UNDERTAKINGS

(a) The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933, as amended (the "Securities Act");

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with

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the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be

governed by the final adjudication of such issue.

Signatures

THE REGISTRANT

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Jose, State of California on the 10th day of November, 2000.

KLA-TENCOR CORPORATION
(Registrant)

By /s/ Kenneth L. Schroeder

Kenneth L. Schroeder
President and
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<TABLE>
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Signature	Title	Date
<S>	<C>	<C>
Principal Executive Officer:		
/s/ Kenneth L. Schroeder	President and Chief	November 10, 2000
-----	Executive Officer	
Kenneth L. Schroeder		

Principal Financial and
Accounting Officer:

/s/ John Kispert	Executive Vice President	November 9, 2000
-----	and Chief Financial Officer	
John Kispert		

</TABLE>

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Signature	Title	Date
<S>	<C>	<C>
Directors:		
*	Chairman of the Board	November 10, 2000
-----	and Director	
Kenneth Levy		
*	Director	November 10, 2000

Kenneth L. Schroeder		
*	Director	November 10, 2000

Edward W. Barnholt		
*	Director	November 10, 2000

Richard J. Elkus, Jr.		
*	Director	November 10, 2000

Dean O. Morton		
*	Director	November 10, 2000

Jon D. Tompkins

*

Director

November 10, 2000

Lida Urbanek

*

Director

November 10, 2000

H. Raymond Bingham

*

Director

November 10, 2000

Robert T. Bond

*By /s/ Stuart J. Nichols

Stuart J. Nichols
Attorney-in-Fact

</TABLE>

A majority of the members of the Board of Directors.

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THE PLAN

Pursuant to the requirements of the Securities Act of 1933, the Registrant, as the administrator of the KLA-Tencor 401(k) Plan, has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Jose, State of California on the 10th day of November, 2000.

KLA-TENCOR 401(K) PLAN
(Plan)

By /s/ Kenneth L. Schroeder

Kenneth L. Schroeder
President and Chief Executive Officer

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EXHIBIT INDEX

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- 5.1. Undertaking re Status of Favorable Determination Letter Covering the Plan. (See Item 8 of this Registration Statement).
- 23.1 Consent of PricewaterhouseCoopers LLP.
- 24.1 Power of Attorney of Directors.

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KLA-TENCOR 401(k) PLAN

AMENDMENT NO. 5

The KLA-Tencor 401(k) Plan (the "Plan"), as originally effective as of January 1, 1982, as most recently restated in its entirety effective as of July 1, 1997, and as subsequently amended on four separate occasions, is hereby further amended effective as of October 2, 2000, except as otherwise specified, as follows:

1. Paragraph (a) of Section 2.4, entitled Compensation, is hereby amended in its entirety, to read as follows:

"(a) SALARY DEFERRAL CONTRIBUTIONS. Base salary or regular time hourly wages, overtime, bonus, stand-by pay, base profit sharing, commissions, differential pay, payments for paid time off and paid time off cashouts, payments in lieu of notice and termination pay. Compensation for purposes of Salary Deferral Contributions shall not include contributions to any nonqualified deferred compensation plan sponsored by the Employer or any cost of living allowance (as defined in the policies and procedures of the Company)."

2. Section 2.9, entitled Distributions, is hereby renamed and amended in its entirety, to read as follows:

"2.9 FORM OF DISTRIBUTION AND BENEFIT.

(a) Form of Distribution. Distributions shall be in the form of cash; provided however, that to the extent a Participant's Account is invested in Company Stock at the time of distribution, the Participant may elect a distribution in the form of whole shares of Company Stock, with any fractional shares to be paid in the form of cash.

(b) Form of Benefit.

(i) For Distributions Elected On or Before December 31, 2000.

(A) Normal Form of Benefit. Benefits shall be paid to the Participant or the Participant's Beneficiary in the form of a single lump sum in the absence of an election by the Participant and subject to Section 7.5.

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(B) Optional Forms of Benefit. The Participant may elect substantially-equal annual installments over a specified period of years which shall not exceed the life expectancies of the Participant and his or her Beneficiary."

(ii) For Distributions Elected On or After January 1, 2001. Benefits shall be paid to the Participant or the Participant's Beneficiary in the form of a single lump sum."

3. The following is hereby added to Article III, entitled DEFINITIONS (and subsequent Sections shall be renumbered accordingly) to read as follows:

"3.7 COMPANY STOCK. 'Company Stock' means common or preferred stock of KLA-Tencor Corporation, or any successor by merger, consolidation or otherwise, that meets the requirements of 'qualifying employer security' under ERISA Section 407(d)(5) and 'employer securities' under Code Section 409(1)."

4. Paragraph (a) of Section 5.1, entitled Salary Deferral Contributions, is hereby amended in its entirety, to read as follows:

"(a) Subject to the limitations of Sections 6.4 and 6.5, an eligible Employee may elect, in accordance with the procedures established from time to time by the Administrator, to have a portion of his or her Compensation contributed the Salary Deferral Contributions Account maintained on his or her behalf. The eligible Employee's election shall specify the amount of his or her Compensation to be contributed, which amount shall not be less than one percent (1%) and not more than fifteen percent (15%) of the Participant's Compensation from each regular pay check and from periodic payments other than base profit sharing that constitute Compensation. In addition, the eligible Employee may elect to have up to one hundred percent (100%) of his or her base profit sharing

payments contributed to the Salary Deferral Contributions Account maintained on his or her behalf. However, in no event shall the dollar amount contributed on behalf of such Participant to his or her Salary Deferral Contributions Account for any calendar year exceed the limit prescribed under Code Section 402(g)(5) (Ten Thousand Five Hundred Dollars (\$10,500) in 2000). A Participant may elect to increase, decrease or discontinue Salary Deferral Contributions in such manner and at such time as the Administrator shall specify from time to time."

5. Effective as of July 1, 2000, Section 6.4, entitled Section 415 Limitations, is hereby amended in its entirety (and the cross-referenced sections in Section 3.42 and throughout the Plan are amended accordingly), to read as follows:

"6.4 SECTION 415 LIMITATIONS.

(a) Definitions.

(i) Annual Additions. 'Annual Additions' means, with respect to each Participant, the sum of the following amounts for the Limitation Year under this Plan, any Other Plan(s), or as otherwise specified:

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(A) Employer Contributions;

(B) Employee contributions;

(C) forfeitures;

(D) amounts allocated, after March 31, 1984, to the Participant's individual medical account (as defined in Code Section 415(1)(2)), which is part of a pension or annuity plan maintained by the Employer;

(E) amounts derived from contributions paid or accrued after December 31, 1985, in taxable years ending after such date, which are attributable to post-retirement medical benefits, allocated to the separate account of a Key Employee (as defined in Code Section 19A(d)(3)) and under a welfare benefit fund (as defined in Code Section 419(e)) maintained by the Employer; and

(F) any Excess Amount applied under paragraph (e)(iii) in the Limitation Year to reduce Employer Contributions.

Contributions do not fail to be Annual Additions merely because they are Excess Elective Deferrals, Excess 401(k) Contributions, or Excess Matching Contributions or merely because Excess 401(k) Contributions or Excess Matching Contributions are corrected through distribution or recharacterization. Excess Elective Deferrals that are distributed in accordance with Section 6.6 are not Annual Additions.

(ii) Defined Contribution Dollar Limitation. 'Defined Contribution Dollar Limitation' means Thirty Thousand Dollars (\$30,000), as adjusted by the Adjustment Factor.

(iii) Excess Amount. 'Excess Amount' means the amount of Annual Additions which, if credited to a Participant's Account under this Plan and any Other Plan(s) for a Limitation Year, would exceed the Maximum Permissible Amount.

(iv) Limitation Year. 'Limitation Year' means the twelve (12)-consecutive month period ending on the last day of the Plan Year. If the Limitation Year is amended to a different twelve (12)-consecutive month period, then the new Limitation Year must begin on a date within the Limitation Year in which the amendment is made effective.

(v) Maximum Permissible Amount. 'Maximum Permissible Amount' means the maximum Annual Addition contributed or allocated to a Participant's Account under this Plan and any Other Plan(s) for any Limitation Year which shall not exceed the lesser of:

(A) the Defined Contribution Dollar Limitation, or

(B) twenty-five percent (25%) of the Participant's Section 415 Compensation for the Limitation Year. The Section 415 Compensation limitation shall

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not apply to any contribution for medical benefits (within the meaning of

Code Section 401(h) or 419A(f) (2)) which is otherwise treated as an Annual Addition under Code Section 415(1) (1) or 419A(d) (2). If a short Limitation Year is created because of an amendment changing the Limitation Year to a different twelve (12)-consecutive month period, then the Maximum Permissible Amount will not exceed the Defined Contribution Dollar Limitation multiplied by the following fraction:

$$\frac{\text{Number of months in the short Limitation Year}}{\text{-----}} \\ 12$$

(vi) Other Plan. 'Other Plan' means any other defined contribution plan to which contributions are or have been made on behalf of Participants in this Plan by one or more members of the controlled group of corporations (as determined in accordance with the ownership rules of Code Section 1563, without regard however, to Code Section 1563(a) (4) or 1563(e) (3) (C)) and any other employer entity which constitutes an affiliated service group or is required to be aggregated with the Employer pursuant to Code Section 414(c), 414(m) or 414(o).

(b) Maximum Annual Additions. The amount of Annual Additions which may be credited to the Participant's Account under this Plan and any Other Plan(s) for any Limitation Year shall not exceed the lesser of the Maximum Permissible Amount or any other limitation contained in this Plan or any Other Plan(s). If the Contributions that would otherwise be contributed or allocated on behalf of the Participant would cause the Annual Additions for the Limitation Year to exceed the Maximum Permissible Amount, then the amount contributed or allocated shall be reduced so that the Annual Additions for the Limitation Year equal the Maximum Permissible Amount.

(c) Timing. Prior to determining the Participant's actual Section 415 Compensation for the Limitation Year, the Employer may determine the Maximum Permissible Amount for a Participant on the basis of a reasonable estimation of the Participant's Section 415 Compensation for the Limitation Year.

(d) Actual Section 415 Compensation. As soon as is administratively feasible after the end of the Limitation Year (or within such other period as applicable for a Participant who terminates employment and requests a distribution from the Plan), the Maximum Permissible Amount for the Limitation Year shall be determined on the basis of the Participant's actual Section 415 Compensation for the Limitation Year.

(e) Disposition of Excess Amount. If an Excess Amount exists for one or more Participants for a Limitation Year, as a result of (i) a reasonable error in determining the amount of elective deferrals (within the meaning of Code Section 402(g) (3)) that may be made with respect to any Participant under the limits of this Section, (ii) an allocation of forfeitures, (iii) a reasonable error in estimating a Participant's annual Section 415 Compensation, or (iv) other facts and circumstances with respect to which the provisions of Income Tax Regulation Section 1.415-6(b) (6) are available, then, to the extent necessary, such Excess Amount shall be disposed of in the manner and in the order specified below. Except to the extent inconsistent with the

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provisions of any Other Plan(s): (i) whenever this Plan provides for the disposition of an Excess Amount, the disposition of an Excess Amount consisting of a particular type of contribution shall be of that type of contribution in this Plan and any Other Plan(s), and (ii) to the extent disposition of an Excess Amount is made, the Administrator shall have discretion as to whether disposition of such Excess Amount shall be made from this Plan or any Other Plan(s), or partly from each.

(i) First, all or the necessary portion of after-tax employee contributions (including, if applicable, gains thereon) made by the Participant for the Limitation Year shall be refunded to the Participant;

(ii) Then, all or the necessary portion of the Participant's share of Employer Profit Sharing Contributions (if any) for the Plan Year coincident with the Limitation Year (including, if applicable, gains thereon) shall be reduced. Accordingly, the Employer shall make appropriate reduction in the Employer Profit Sharing Contributions for the calendar quarter(s) for which the Participant's Employer Profit Sharing Contribution is reduced. If such amount has been allocated to the Participant's Employer Profit Sharing Contributions Account, the amount shall be withdrawn from such Account, held in a suspense account, and disposed of pursuant to paragraph (f) below;

(iii) Then, all or the necessary portion of Salary Deferral Contributions (including, if applicable, the gains thereon) made on the Participant's behalf which were not the subject of any Employer Matching Contributions shall be distributed to the Participant as a current cash payment, subject to applicable Federal and state withholding taxes;

(iv) Then, all or the necessary portion of Salary Deferral Contributions (including, if applicable, the gains thereon) made on the Participant's behalf for such Limitation Year which were entitled to Employer Matching Contributions shall be distributed to the Participant as a current cash payment, subject to applicable Federal and state withholding taxes, and no Employer Matching Contributions shall be made with respect to the distributed Salary Deferral Contributions. Accordingly, the Participant's Employer Matching Contributions for such Limitation Year are to be reduced as follows:

(A) to the extent the Employer Matching Contributions have not already been made on the Participant's behalf, the reduction shall be effected by making an appropriate reduction in the aggregate amount of Employer Matching Contributions to take into account the distributed Salary Deferral Contributions no longer eligible for Employer Matching Contributions; or

(B) to the extent the Employer Matching Contributions have already been allocated to the Participant's Employer Matching Contributions Account, then such Employer Matching Contributions (to the extent attributable to the distributed Salary Deferral Contributions) shall, together with the Earnings thereon (if applicable), be withdrawn from the Participant's Employer Matching Contributions Account and used for any Employer Matching Contributions still to be made on behalf of other Participants

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eligible for Employer Matching Contributions. Any Employer Matching Contributions withdrawn from the Participant's Employer Matching Contributions Account and not utilized shall be held in a suspense account and disposed of pursuant to paragraph (f) below; and

(v) Finally, all or the necessary portion of the Participant's allocable share of contributions and forfeitures under any Other Plan(s) (other than as set forth in paragraphs (i) through (iv) above) shall be reduced in accordance with the applicable provisions of such Other Plan(s).

(f) Suspense Account. Amounts held in the suspense account pursuant to subparagraphs (ii) and (iv) above shall be held unallocated and shall be used to reduce future Employer Contributions for each succeeding Plan Year until the suspense account is reduced to zero (0). No Earnings attributable to the assets of the Trust shall be allocated to the suspense account, nor shall any contributions to this Plan or, if applicable, Other Plan(s), be made by the Employer while there is an outstanding balance in such suspense account. Upon the termination of the Plan, any outstanding balance in the suspense account shall revert to the Employer, or if applicable, the Participating Employer who made such Contributions to the Plan."

6. Effective July 1, 2000, paragraph (b) of Section 6.6, entitled Distribution of Excess Deferral Contributions, is hereby amended in its entirety and a new paragraph (c) is added, to read as follows:

"(b) Reimbursement of Excess Salary Deferrals and Forfeiture of Related Matching Contributions. Excess Salary Deferrals shall be distributed to the Participant no later than April 15th of the calendar year following the year in which the Excess Salary Deferrals were made. Employer Matching Contributions made on account of such Excess Salary Deferrals shall be forfeited as soon as administratively feasible thereafter and applied to reduce future Employer Contributions.

(c) Adjustment for Earnings. Excess Salary Deferrals and Employer Matching Contributions attributable thereto shall be adjusted for any earnings. Earnings shall be calculated through the end of the taxable year of the Participant for which the Excess Salary Deferrals and Employer Matching Contributions attributable thereto were made. Earnings shall also be calculated for the Gap Period. For this purpose, the 'Gap Period' means the period beginning on the first day of the subsequent taxable year of the Participant and ending on either the day before the date of distribution or on a date selected in accordance with the safe harbor method set forth in Income Tax Regulation Section 1.402(g)-1(e)(5)(iv). The earnings allocable to Excess Salary Deferrals and Employer Matching Contributions attributable thereto shall be calculated by the Administrator using any reasonable method for computing the earnings allocable to Excess Salary Deferrals and Employer Matching Contributions attributable thereto; provided, however, that the method shall not violate Code Section 401(a)(4), and that the method shall be used consistently for all Participants, for all corrective distributions under the Plan for the Plan Year, and for allocating Earnings to Participants' Accounts."

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7. Effective as of the dates set forth below, paragraph (a) of Section 7.5, entitled Commencement of Distribution, is hereby amended in its entirety

and replaced with the following new paragraphs (a), (b), (c) and (d) (former paragraphs (b), (c), (d) and (e) shall be redesignated as 7.5 (e), (f), (g) and (h), respectively), to read as follows:

"(a) Subject to Sections 7.5 through 7.9 and the Appendices, following a Participant's Severance Date, the Participant's Accounts shall be distributed at a date designated by the Administrator, which designation (except as provided below) shall be as soon as administratively practicable following the next Valuation Date after the participant's Severance Date.

(b) Effective for any distribution made during the period beginning with the start of the first Plan Year after August 5, 1997, and ending on March 22, 1999:

(i) if the Participant's vested Account balance does not exceed Five Thousand Dollars (\$5,000) at the time of distribution (or at the time of any prior distribution), then the Participant shall receive a lump sum distribution of the entire vested portion of such Account balance and the nonvested portion shall be treated as a forfeiture; or

(ii) if the Participant's vested Account balance exceeds Five Thousand Dollars (\$5,000) at the time of distribution (or at the time of any prior distribution), then the Participant must consent in writing prior to the distribution.

(c) Effective for distributions made on or after March 22, 1999:

(i) if the Participant's vested Account balance does not exceed Five Thousand Dollars (\$5,000) at the time of the distribution, then the Participant shall receive a lump sum distribution of the entire vested portion of such Account balance and the nonvested portion shall be treated as a forfeiture; or

(ii) if the Participant's vested Account balance exceeds Five Dollars (\$5,000) at the time of distribution, then the Participant must consent to the distribution in writing. (iii) Notwithstanding the foregoing, if a Participant has begun to receive a distribution pursuant to an optional form of benefit under which at least one (1) scheduled periodic distribution is still payable, and if the value of the Participant's vested Account balance exceeded Five Thousand Dollars (\$5,000) at the time of the first distribution under that optional form of benefit, then the remaining value of the Participant's vested Account balance may not be distributed without the written consent of the Participant.

(d) If consent is required for a distribution, then the Participant must consent in writing to the distribution before it may be made and within the ninety (90)-day period ending on the first day on which all of the events have occurred that entitle the Participant to such benefit (the 'Annuity Starting Date'). If the Participant consents to the distribution, then such distribution shall include all of the Participant's vested Account

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balance. If the Participant does not consent in writing to the distribution, then the Participant's vested Account balance shall be held in the Trust until the maximum period permitted under paragraph (e) below. If consent to a distribution is required hereunder, then at least thirty (30) days and not more than ninety (90) days prior to the Annuity Starting Date, the Administrator shall provide the Participant with a notice of the right to elect immediate distribution or the right to defer distribution until the Participant's Normal Retirement."

8. Effective as of January 1, 2000, the following sentence is added to paragraph (b) (iv) of Section 7.6, entitled Direct Rollovers and Withholding to read as follows:

"An Eligible Rollover Distribution does not include Salary Deferral Contributions distributed as a result of a hardship distribution, as set forth in Section 7.11."

9. Paragraph (a) of Section 7.11, entitled Hardship Distribution, shall be amended in its entirety, to read as follows:

"(a) The Trustee shall, upon a qualifying hardship of a Participant (as specified in this Section), and upon the direction of the Administrator, make a distribution from the Participant's Salary Deferral Contributions Account (not including earnings), if any, and if such Account is not maintained, or if the account balance of such Account is not sufficient for the distribution, the Trustee shall then make such distribution from the Participant's Rollover Contributions

Account. A Participant shall be entitled to a hardship distribution only if the distribution is both (i) made on account of an immediate and heavy financial need of the Participant (as defined in paragraph (b)), and (ii) is necessary to satisfy such financial need (as defined in paragraph (c)). Notwithstanding the foregoing, amounts invested in the KLA-Tencor Common Stock Fund shall not be eligible for withdrawal pursuant to this Section."

10. Section 10.3, entitled Investment Decision, shall be amended, in its entirety, to read as follows:

"10.3 INVESTMENT DECISION. The decision as to the investment of an Account shall be made by the Participant, and the Trustee shall have no responsibility for determining how an Account is to be invested or whether the investment directions communicated to the Trustee comply with the terms of the Plan. Except for a Participant subject to Section 16 of the Securities Exchange Act of 1934, as amended, each Participant may direct the investment of up to one hundred percent (100%) of his or her Account in Company Stock. Notwithstanding the foregoing, to the extent Participant Accounts are held in the form of Company Stock, the following rules shall apply:

(a) if the Administrator determines that any election out of Company Stock might violate applicable securities laws or create a liability for Participants under such laws or is for any other reason known to the Administrator contrary to the best interests

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of Participants, the Administrator may, in its sole and absolute discretion, suspend or limit the right of any Participant to make such an investment election;

(b) cash dividends, if made, shall be allocated to the purchase of additional shares of Company Stock; and

(c) rights to sell and vote Company Stock shall be administered in accordance with the Trust Agreement and the Company's insider trading policy."

11. Effective as of January 1, 2001 and pursuant to Regulation Section 1.411(d)-4 Q&A-2(e), Paragraph A.6-1, entitled Distribution Forms, and Paragraph A.7, entitled Spousal Consent, of Appendix A, entitled Merger of Tencor Instruments 401(k) Retirement Plan, is hereby deleted in its entirety.

12. Effective as of January 1, 2001 and pursuant to Regulation Section 1.411(d)-4 Q&A-2(e), Paragraph B.5-1, Distribution Forms, of Appendix B, Merger of Amray\Lico, Inc. Employee Savings Plan, is hereby deleted in its entirety.

This amendment is executed this ____ day of October, 2000.

KLA-TENCOR CORPORATION

By: _____

Title: _____

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CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated July 24, 2000, except as to Note 9 which is as of August 15, 2000, relating to the financial statements of KLA-Tencor Corporation, which appears in KLA-Tencor Corporation's Annual Report on Form 10-K for the year ended June 30, 2000. We also consent to the incorporation by reference of our report dated July 24, 2000 relating to the financial statement schedule, which appears in such Annual Report on Form 10-K.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP
San Jose, California
November 9, 2000

POWER OF ATTORNEY OF DIRECTORS

KNOW ALL PERSONS BY THESE PRESENTS:

Each of the undersigned directors of KLA-Tencor Corporation, a Delaware corporation (the "Company"), hereby constitutes and appoints STUART J. NICHOLS as his or her true and lawful attorney-in-fact, for him or her and in his or her name, place and stead, in any and all capacities, to execute a Registration Statement or Registration Statements on Form S-8 or other appropriate form, under the Securities Act of 1933, as amended, relating to up to 1,500,000 additional shares of common stock, \$0.001 par value, of the Company, and an indeterminate number of plan interests issuable under the KLA-Tencor 401(k) Plan, as amended, and any and all amendments (including post-effective amendments) to such Registration Statements, and to file such Registration Statements and any and all amendments thereto, with exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact full power and authority to do and perform each and every act and thing necessary or desirable to be done in and about the premises, as fully to all intents and purposes, as he or she might or could do in person, thereby ratifying and confirming all that said attorney-in-fact may lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, I have hereunto set my hand this 2nd day of November, 2000.

<TABLE>

<p><S></p> <p>/s/ Kenneth Levy</p> <p>-----</p> <p>Kenneth Levy</p> <p>/s/ Edward W. Barnholt</p> <p>-----</p> <p>Edward W. Barnholt</p> <p>/s/ Dean O. Morton</p> <p>-----</p> <p>Dean O. Morton</p> <p>/s/ Lida Urbanek</p> <p>-----</p> <p>Lida Urbanek</p> <p>/s/ Robert T. Bond</p> <p>-----</p> <p>Robert T. Bond</p>	<p><C></p> <p>/s/ Kenneth L. Schroeder</p> <p>-----</p> <p>Kenneth L. Schroeder</p> <p>/s/ Richard J. Elkus, Jr.</p> <p>-----</p> <p>Richard J. Elkus, Jr.</p> <p>/s/ Jon D. Tompkins</p> <p>-----</p> <p>Jon D. Tompkins</p> <p>/s/ H. Raymond Bingham</p> <p>-----</p> <p>H. Raymond Bingham</p>
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