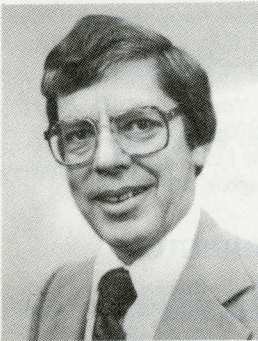

Reliability Society Newsletter

Editor: Susan Eames

Vol. 28, No. 3, July 1982 (USPS 460-200)

President's Report



C. M. Bird, President

HOW much is your voice heard in the charting of future courses for the Reliability Society and the IEEE? The Institute exists to serve you and values your opinion. Take the time to read the remainder of this column and then ask yourself, "Do I have an opinion?" If the answer is affirmative, then take another few minutes to write or telephone one of your officers.

A proposal is being circulated within IEEE to establish and sponsor a "Political Action Committee." The details of this proposal are contained elsewhere in this *Newsletter*,

but I will quickly summarize. The Political Action Committee (PAC) would solicit and receive contributions from IEEE members to support candidates for Federal offices. The PAC would then solicit candidates whose election would clearly be in the interests of the IEEE and/or its members. The PAC would then make contributions to these candidates. No IEEE funds (member dues) would be used for this purpose. This would provide a means for consolidating members' resources to have a stronger voice in the political processes. It also implies that as a member of the IEEE, the PAC is empowered to express political views for you without the benefit of your opinion. This is a controversial issue and would be decided after due consideration of the opinions of members. Let us know your opinions.

Along similar lines, the IEEE Board of Directors has, for the first time, nominated two candidates each for the offices of President-Elect and Executive Vice President of the IEEE. This was done in order to provide the members with a voice in the conduct of Institute Affairs. I urge you to review the issues prior to elections and then to make your opinions known by voting.

Editor's Corner

By the time you receive this *Newsletter* the summer will be well on its way and the furthest thing from your mind is the rushed schedule that comes along with cool Fall weather and the Autumn leaves. However, now is the time to plan for Fall. In this issue of the *Newsletter* you will find various conferences and short courses that will be offered in the near future. When was the last time you attended such an event? Please take a look at this issue and find out if there is anything being offered that would fill a present need.

In addition, now is the time to submit publicity for your Fall/Winter events to the *Newsletter*. What are you or your chapter doing in the upcoming months, that you would like everyone to know about? All inputs are welcome. Send to Editor, Reliability Society Newsletter, 2 Linda Street, Westborough, MA. 01581. The deadline for the next issue is the end of July. I hope to be hearing from you!

Enjoy the Summer!
Susan Eames, Editor

Reliability Society Officers

PRESIDENT

C. M. Bird
IBM Corporation
102A353
Owego, NY 13827
(607) 751-3729

VP TECH. OPERATIONS

N. J. McAfee
Westinghouse
Box 746, MS 433
Baltimore, MD 21203
(301) 765-3400

VP MEMBERSHIP

H. A. Malec
ITT/ATC
1 Research Drive
Shelton, CT 06484

SECRETARY

M. J. Shumaker
Martin Marietta Aerospace
Mail No. 8444
P.O. Box 179
Denver, Co 80201
(303) 977-5063

JR. PAST PRESIDENT

T. L. Regulinski, Ph.D.
Goodyear Aerospace
P.O. Box 295
Goodyear, AZ 85338
(602) 932-7321

VP PUBLICATIONS

A. Coppola
Rome Air Development Center
RADCB/RBET
Griffiss AFB, NY 13441
(315) 330-4726

VP MEETINGS

D. I. Troxel
RCA, Bldg. 13-14
Front & Copper Streets
Camden, NJ 08102
(609) 338-3536

TREASURER

I. A. Feigenbaum
COMSAT Laboratories
Clarksburg, MD 20734
(301) 428-4489

Reliability Society Chapter Chairmen

CHAPTERS CHAIRMAN FLORIDA WEST COAST

Henry A. Malec
ITT/ATC
1 Research Drive
Shelton, CT 06484

Charles M. Krzesicki
14060 102nd Ave. N.
Largo, FL 33540

BALTIMORE

Thomas R. Kalaf
6438 Golden Oak Drive
Linthicum, MD 21090

LOS ANGELES COUNCIL

K. L. Wong
Hughes Aircraft Co.
Bldg. 21
Culver City, CA 90230

CENTRAL NEW ENGLAND COUNCIL

Wilfred Aubert
Sanders Assoc. Inc.
95 Canal Street
Nashua, NH 03061

MOHAWK VALLEY

J. J. Naresky
IITRI
The Beeches Carriage Suite
Turin Road
Rome, NY 13440

CHICAGO

Robert L. Frank
Beltone Electronics Corp.
4201 W. Victoria Street
Chicago, IL 60618

MONTREAL

Joseph Fuchs
Hydro Quebec
75 West Dorchester
Montreal, Que., Canada
H2Z 1A4

CLEVELAND

V. R. Lalli
21000 Brookpark Road
M S 500 211
Cleveland, OH 44135

NEW YORK/

LONG ISLAND
Victor Bonardi
64 Jefferson Ave.
Rockville Center, NY 11570

CONNECTICUT

David J. Finnicum
3 Punkin Drive
Ellington, CT 06029

NORTH JERSEY

S. W. Bogaenko
32 Melissa Drive
Totowa, NJ 07512

DENVER

S. J. Keene
I.B.M.
P.O. Box 1900
Boulder, CO 80302

PHILADELPHIA

F. E. Oliveto
920 Snyder Ave.
Philadelphia, PA 19148

TWIN CITIES

Jon F. Yearous
Control Data Corp.
Box 609 MS-HQG 326
Minneapolis, MN 55440

SANTA CLARA VALLEY/ SAN FRANCISCO/ OAKLAND EAST BAY

Dave Burgess
Hewlett Packard Co.
1501 Page Mill Road
Palo Alto, CA 94304

WASHINGTON

C. William Hamby
Evaluation Assoc. Inc.
Suite 525 Century Blvd.
2341 Jefferson Davis Hwy.
Arlington, VA 22202

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Most Recent Reliability and Maintainability Reports Of the Rome Air Development Center

These documents may be obtained by the general public from:

National Technical Information Service
Department of Commerce
5285 Port Royal Road
Springfield, VA 22151
(800) 336-4700

U.S. Defense Contractors may obtain copies from:
Defense Technical Information Center
Cameron Station
Alexandria, VA 22314
(202) 694-6864

When ordering documents from either agency, the AD number should be cited as well as the RADC TR number. Listings with no AD number have been printed but were not assigned an AD number at the time this listing was completed.

Note: This listing includes only reports available to the general public.

Equipment/System Reliability

- RADC-TR-79-200, "Reliability and Maintainability Management Manual"; Anthony Coppola, AD-A073299.
- RADC-TR-80-30, "Bayesian Reliability Theory for Repairable Equipment"; T. Bolis, SCEEE, AD-A083009.
- RADC-TR-80-136, "Nonoperating Failure Rates for Avionics Study"; Hughes, G. Kern, K. Wong, AD-A087048.
- RADC-TR-80-235, "Reliability/Maintainability Study for Tactical Ground Electronic Shelters"; D. Fulton, IITRI, AD-A087627.
- RADC-TR-80-288, "Traveling Wave Tube Failure Rates"; Hughes Aircraft Co., J. Engleman, AD-A096055.
- RADC-TR-80-299, "Revision of Environmental Factors for MIL-HDBK-217B"; Martin Marietta Corp., B. Kremp, E. Kimball, AD-A091837.
- RADC-TR-80-322, "Failure Rates for Fiber Optic Assemblies"; IITRI, S. Flint, AD-A092315.
- RADC-TR-81-87, "Burn-in: Which Environmental Stress Screens Should Be Used"; D. Karam, AD-A099207.
- RADC-TR-81-106, "Bayesian" Reliability Tests Made Practical"; A. Coppola, AD-A108150.
- RADC-TR-81-267, "An Assessment of the Magnitude of Electromechanical Failures Occurring Within Air Force Command"; IITRI, AD-A108203.

Maintainability/Testability

- RADC-TR-79-327, "An Objective Printed Circuit Board Testability Design and Rating System"; Grumman, F. Danner, W. Consolla, AD-A082329.
- RADC-TR-79-334, "Operational and Support Cost Characteristics of Testers and Test Subsystems"; Hughes, D. Bogard, et al. AD-A082431.
- RADC-TR-79-287, "Warranty Guarantee Application Guidelines for Air Force Ground Electronic Equipment"; ARINC, F. Crum, et al, AD-A082318.
- RADC-TR-79-309, "BIT/External Test Figures of Merit and Demonstration Techniques"; Hughes, T. Pliska, F. Jew, J. Angus, AD-A081128.
- RADC-TR-80-32, "Built-in-Test and External Tester Reliability Characteristics"; Lockheed, D. Tuttle, R. Loveless, AD-A083488.
- RADC-TR-80-111, "Design Guidelines and Optimization Procedures for Test Subsystem Designs"; Grumman, D. Lord, G. Walz, S. Green, AD-A087059.
- RADC-TR-80-182, "Availability/Operational Readiness Test Subsystem Cost Trade-offs"; Lockheed, R. Loveless, AD-A088201.
- RADC-TR-81-220, "Analysis of Built-in-Test False Alarm Conditions"; Hughes, J. Malcolm, R. Highland.

Device Reliability

- RADC-TR-79-269, "Test Procedures for Semiconductor Random Access Memories"; University of Iowa, AD-A080450.
- RADC-TR-79-302, "Reliability Characterization of L.S.I. Memories"; McDonnell-Douglas, A. T. Sasaki, AD-A080481.
- RADC-TR-80-5, "Reliability Evaluation of Schottky-Device Microcircuits"; K. B. Lash, Fullerton CA., AD-A082926.
- RADC-TR-80-124, "Reliability Evaluation of GAAs Power FETs"; TI, H. M. Macksey, AD-A086668.
- RADC-TR-80-49, "Electrical Characterization of Special Purpose Linear Microcircuit"; GE, AD-A089422.
- RADC-TR-80-104, "Hardness Assured Device Specifications"; Boeing Aerospace, C. J. Dixon, AD-A089677.
- RADC-TR-80-124, "Reliability Evaluation of GAAs Power FETs"; Purdue University, H. M. Macksey, AD-A087048.
- RADC-TR-80-210, "Microwave Integrated Circuits Procedures Evaluation"; Harris Corporation, F. Belgin, AD-A090677.
- RADC-TR-80-236, "Corrosion of Metal Films With Defective Surface Protection Layers"; RCA Labs, R. B. Comizzoli, AD-A090028.
- RADC-TR-80-237, "Reliability Prediction Modeling of

New Devices"; Arthur D. Little, Inc., Roger G. Long, AD-A090029.

- RADC-TR-80-250, "SEM Analysis Techniques for LSI Microcircuits"; Martin Marietta Corp., J. R. Beall, AD-A090922 (Vol I), AD-A090923 (Vol II).
- RADC-TR-80-263, "Evaluation of Electrical Test Conditions in MIL-M-38510 Slash Sheets"; Hughes Aircraft Co., K. Sandgren, AD-A093215.
- RADC-TR-80-274, "Test Generation and Fault Isolation for Microprocessors and Their Supported Devices"; General Electric Ordnance, Warren H. Debany, AD-A096360.
- RADC-TR-80-283, "Hybrid Microcircuit Rework Procedures Evaluation"; Hughes Aircraft Co., G. T. Malloy, AD-A092950.
- RADC-TR-80-325, "Electrical Characterization of Microprocessors and Their Support Chips"; General Electric, B. W. Hajduk, AD-A093216.
- RADC-TR-80-328, "Electromigration Testing of Al-Alloy Films"; Texas Instruments, Inc., P. B. Ghate, AD-A093492.
- RADC-TR-80-384, "Testability and Reliability of LSI"; Lehigh University, Alfred K. Sussk, AD-A096310.
- RADC-TR-80-390, "Reliability Evaluation of GAAs FETs"; Texas Instruments, Inc., H. M. Macksey, AD-A096306.
- RADC-TR-80-401, "Electrical Characterization of Complex Memories"; IBM Corporation, A. H. Taber, AD-A096065 (Part I), AD-A096065 (Part II).
- RADC-TR-81-010, "Electrical Characterization of Single Chip Microprocessors and Other LSI Devices"; General Electric Co., B. W. Hajduk, AD-A097897.
- RADC-TR-81-038, "Electrical and Reliability Characterization of Schottky Power Diodes"; International Rectifier, M. F. Gift, AD-A099521.
- RADC-TR-81-072, "Electrical Characterization and Specification of Peripheral Drivers, Core Drivers, and Multiplying Drivers"; General Electric, J. S. Kulpinski, AD-A102841.
- RADC-TR-81-125, "Electrical Characterization of Microprocessors Memories"; Hughes Aircraft Co., Ted Y. Fujimoto, AD-A102305.
- RADC-81-126, "Electrical Characterization of Advanced Microprocessors"; General Electric, B. W. Hajduk, AD-104170.
- RADC-81-180, "Failure Mechanism Study of GAAs Technology"; Hughes Aircraft Co., Dr. L. S. Bowma, AD-A104440.

Software Reliability

- RADC-TR-80-13, "A Review of Software Maintenance Technology"; IIT Research Institute, J. Donahoo, & D. Swearingen, AD-A083985.
- RADC-TR-80-28, "Evaluation of Software Life Cycle Data From the Pave Paws Project"; General Electric, B. Curtis, S. Sheppard, E. Kruesi, AD-A085323.
- RADC-TR-80-45, "Software Test Models and Implementation of Associated Test Drivers"; Polytechnic

Institute of New York, D. Baggi, M. Shooman, AD-A089997.

- RADC-TR-80-55, "Performance Ripple Effect Analysis for Large-Scale Software Maintenance"; Northwestern University, S. Yau, J. Collofello, AD-A084351.
- RADC-TR-80-84, "Analysis of Discrete Software Reliability Models"; IBM Corporation, W. Brooks & R. Motley, AD-A086334.
- RADC-TR-80-109, "Software Quality"; General Electric Company, J. McCall, M. Matsumoto, AD-A086985 (Vol I), AD-A086986 (Vol. II).
- RADC-TR-80-138, "Self-Metric Software, Summary of Technical Progress"; Northwestern University, S. Yau, J. Collofello, C. Hsieh, AD-A086290 (Vol. I), AD-A086291 (Vol II), AD-A086292 (Vol III).
- RADC-TR-80-179, "A Time Dependent Error Detection Rate Model for Software Performance Assessment with Applications"; Syracuse University, A. Goel, K. Okumoto, AD-A088186.
- RADC-TR-80-204, "Data and Analysis Center for Software"; IIT Research Institute, Interim Report, L. Duvall, S. Gloss-Soler, J. Martens, AD-A090826.
- RADC-TR-80-261, "Jovial J73 Automated Verification System Study Phase"; General Research Corp., C. Gannon, AD-A091190.
- RADC-TR-80-337, "Total System Design Methodology"; Martin Marietta, E. C. Stanke, AD-A095727.
- RADC-TR-80-409, "An Assessment Procedure and a Set of Criteria for Use in the Evaluation of Computerized Models and Computer-based Modeling Tools"; Syracuse University, R. G. Sargent, AD-A098785.
- RADC-TR-81-102, "Design Specification Validation"; University of Southern California, R. M. Blazer, AD-A102361.
- RADC-TR-81-128, "Jovial (J73) Compiler Validator"; TRW Defense and Space Group, R. M. Hart, M. S. McClanahan, AD-A102386.
- RADC-TR-81-105, "Specification Tools Environment Study"; TRW Defense and Space Systems Group, L. Baket, et al, D. A. Richard, R. A. Vossler, AD-A102304.
- RADC-TR-81-183, "Software Modeling Studies"; Polytechnic Institute of New York, AD-A105810 (Vol I), AD-A105004 (Vol II), AD-A106034 (Vol III), AD-A105078 (Vol IV).
- RADC-TR-81-94, "FAVS Enhancements"; General Research Corporation, R. A. Melton, AD-A102218.
- RADC-TR-81-127, "Distributed and Decentralized Control in Fully Distributed Processing Systems"; Georgia Institute of Technology, P. H. Enslow, Jr., AD-A104379.
- RADC-TR-81-144, "An Evaluation of Software Cost Estimating Models"; General Research Corporation, R. Thibodeau, AD-A104226.
- RADC-TR-81-145, "Analysis of IV&V Data"; LOGICON, Inc., J. W. Radatz, AD-A104171.

WHY AN IEEE IRA?

By Donald D. King, Chairman
Individual Benefits and Services Committee

Since the first of the year, banks and other financial institutions have put on a tremendous campaign to sell IRA'S (Individual Retirement Accounts). In March, the IEEE joined in with a sponsored program. Why was this done, and how does the new IRA program compare with other member benefits?

Pensions have been an important issue for IEEE members for years. The Individual Benefits and Services Committee was alert to this member interest and had examined various alternatives in depth. The tax law changes effective January 1, 1982, then made it feasible to offer a retirement investment program to members. The announcement was delayed by legal and administrative arrangements until March. Under the previous law, self employed persons or employees not covered by a pension plan, could obtain Keough or IRA plans respectively. The 1982 law extends IRA eligibility to all wage earners, whether covered by pension plans or not. This means that virtually all IEEE members are potential beneficiaries. Universal eligibility is an important factor, which has been a criterion for other IEEE member benefits. Basically, member benefits should be quantitatively available to all, and qualitatively worthwhile.

There are many types of IRA's available to the public and the choice to be made is a matter of personal financial planning. The particular plans offered under the IEEE Program are designed to offer a selection of mutual funds. Thereby, members have the opportunity to choose a plan to suit their needs, and also to make changes in the future, whenever they wish. The two large mutual fund organizations involved were selected by the IB&S Committee on the basis of the service they agreed to offer especially to IEEE members, and on their past record of performance.

Of course, no one can predict future financial results. However, the performance of the mutual funds in the program will be monitored, just as the performance of life and medical insurance carriers is monitored by the IB&S Committee and its consultants. The combination of this regular review by IEEE members, flexible choice of mutual funds, and convenient, low cost administration is unique among the many publicly advertised plans available. As with other member benefits, there is no financial burden or responsibility involved for the IEEE. Only the numbers of participating members bring leverage for group advantages. These are more pronounced in the established group insurance programs than in the IRA/KEOGH offering. However, the new IEEE Retirement Investment Program represents good value and convenience to members, and should become a key part of individual benefits.

(Revised) Proposal for an IEEE-Sponsored Political Action Committee

Name: Formal title must show connection with the sponsor, e.g., "The IEEE/USAB Political Action Committee," however, a short title may be used in referring to the organization, such as "Electro PAC" of the "Fund for Technology and Society."

The IEEE/USAB PAC will be non-partisan and will support multiple candidates for Federal offices in accordance with selection made by majority action of the PAC Trustees. The Trustees, in making such selections, will be primarily guided by the purpose of the PAC (stated above) and may consider one or more of the following additional factors:

1. Candidates share a common view with a stated IEEE position or positions.
2. There is a clear philosophical difference between the candidates in the race.
3. The race is close (not a "sure thing").
4. The IEEE/USAB PAC support is likely to make a difference.

5. The candidate is likely to be an *effective* supporter of the purpose defined for the PAC.

Solicitations: May be made by mail or at meetings, subject to guidelines set by USAB and PAC Trustees.

Other Provisions: No IEEE dues or other funds may be used to support candidates. IEEE staff support, mailings, publicity and other administrative services may be provided to assist the PAC in performing its functions. Management of the PAC is separate from IEEE.

Purpose: The IEEE/USAB PAC exists to provide a means for its U.S. members to participate in the political process through voluntary contributions to candidates for public office in accordance with current Federal Election Laws. The IEEE/USAB PAC is intended to support the professional activities objectives of the IEEE as stated in the constitution:

(Continued on page 10)

Software Reliability Activity

The IEEE Software Reliability Technical Committee and the EIA Reliability Committee held a joint meeting in San Francisco, October 22, 1981. Following are the minutes of the meeting and proposed definitions. Comments on these would be appreciated by the Chairman of the IEEE Committee. Please send to:

I. Doshay
380 Surf View Drive
Pacific Palisades, CA 90278

Minutes of the Joint Meeting:

1. Software Reliability Definitions: It was decided that the IEEE software reliability definitions supplied by I. Doshay should be sent out to the EIA G-41 committee members one more time for comments. G. Carrubba indicated he would do this. Eventually it is planned to recommend that the approved definitions be incorporated in MIL-STD-721.

2. Software Reliability Plans: It was decided it is premature to change MIL-STD-785 to include software reliability.

3. Concept of Fault Tolerant Design: Since the concept of fault tolerant design affects software reliability, this subject was discussed as a possible item of concern for this committee. It was recommended that the G-33 committee address this subject, including the need for a guidance document on fault tolerant design.

4. Review of Standard for Software QA Plans: It was suggested that the G-41 committee look at the IEEE Software Quality Assurance Guide (SQAG) from a reliability viewpoint.

It was decided that the SQAG should be sent out for comments. I. Doshay will send a copy to G. Carrubba who will have E. Nucci distribute it. D. Troxel will be the Task Coordinator. It was also suggested that the Task Coordinator prepare a strawman version rewritten as a revision to MIL-STD-785.

5. Review of Working Paper on Development of Safety Related Software: Purdue University has workshops on this subject. The next meeting is in October 1982. It was noted that this paper should be reviewed by the G-48 committee. I. Doshay will send a copy to G. Wulff who will see that G-48 receives it.

6. Glossary of Software Engineering Terminology—IEEE Computer Society: This document (Draft #7) has been in process for many years. The only action decided upon with regard to this document was that I. Doshay should send a copy to the IEEE Coordinator with an EIA/SRTC recommendation that these definitions be included in the draft.

7. Plans for Software Reliability Seminar: The IEEE Software Reliability Seminar will be held in October 1982, probably in Los Angeles. EIA members will be invited.

8. New Areas of SRTC Concern: An area of concern is "who is going to take up the banner of predictions"? It was noted that RADC's effort on a Software Reliability Notebook has been interrupted by personnel changes. Dr. P. Bright volunteered to head this SRTC Concern. He will feed back information to both the SRTC and the EIA-41.

Software Reliability, Availability and Maintainability (RAM) Definitions

Software reliability: The probability that the required software will perform the intended logical operations for the prescribed mission(s) and period(s) in the specified data/environment, without failure.

Software failure: The inability, due to a fault in the software, to perform an intended logical operation in the presence of the specified data/environment.

Software reliability prediction model: Mathematical model that could include appropriate parameters such as code complexity, branching numerics, structured/modular format utilization, execution rate, timing restrictions, and data complexity, predictability and variability, as may be verified by test data.

Compatible hardware/software prediction models: Suitable interpretation of hardware and software mathematical relationships for combined computation so as to make feasible prediction of the System Reliability.

Software maintainability: The probability that the software can be retained in or restored to a specified status in a prescribed period compatible with mission requirements.

Software corrective modification: The necessary corrections of the logic/code that will preclude repetition of a prior experienced software failure when processing a data set associated with that failure.

Software preventive modification: The periodic updating of the software to preclude system failure when processing potential data sets.

Software maintainability model: A mathematical model that may be derived from prior experience in correcting software faults that predicts frequency of faults of various categories, and may include:

- Suitable parameters to accommodate results of timeline analysis of software corrective and preventive maintenance.
- Determination of Mean Time To Restore (MTTR) as well as maximum restore time for the 95th percentile of the timeline data.
- Determination of optimum performance of software corrective and preventive modification tasks, including frequency and duration.

System Hardware/Software Effectiveness Definitions

System effectiveness: The measure of the degree to which the hardware and the software achieve the mission requirements in the operational environment as evidenced in system availability, dependability and capability.

System dependability: The probability that the hardware and software will perform successfully during one or more required sequences of a mission, given the hardware and software status at the start of the mission (availability).

System capability: The probability that the hardware and the software can achieve the required mission objectives given the operational conditions, including data environment, during the mission.

System availability: The probability (or proportion of operational time) that the hardware and software are in the required operable and committable state when the mission is required with a specified data environment.

System effectiveness model: A mathematical model encompassing both hardware and software for a prior prediction, a pre-operational test evaluation or an operational demonstration of the deliverable system effectiveness.

- The model should encompass the foregoing defined parameters and include a practical means of computation and analysis.
- Implementation of the model is generally demonstrated with data from other programs or data assumed from requirements, prior to application in the current program.

AUTOTESCON '82 Program Set

At an April meeting of the AUTOTESCON Board of Directors, representatives of the 1982 conference reported on progress and plans for the October 12-14, gathering. Oscar Sepp, of the Air Force Aeronautical Systems Division and General Chairman of ATC '82, expressed his satisfaction with the enthusiasm and results accomplished by his Management Committee, but warned potential attendees that hotel reservations are disappearing quickly. He noted that Stouffers, site of the technical sessions, is sold out. Limited additional space is available at other nearby hotels. Already over 50 exhibitors have reserved space at the Convention Center but there is some room for more. Mr. Sepp also said that more streamlined registration is planned, with six lines available. Of course, preregistration is encouraged to minimize delays on Tuesday morning. Exciting plans for spouses have been planned each day, including Air Force Museum, and antique "drag", and a riverboat trip.

Other items covered at the Board meeting included preliminary plans for ATC '83 in Fort Worth, which will be held November 1-3, 1983. Wesley Beard, General Dynamics, has been named General Chairman. Another exciting conference is scheduled for 1984, when the Board approved the Nation's Capital for the site of ATC '84, to be held November 2-4, during the next Presidential election period. Mike Nyles, Naval Air Systems Command, will be the General Chairman. Further, special programs will be planned for that conference to mark the 100th Anniversary of the IEEE, the sponsoring organization of AUTOTESCON.

At the beginning of the meeting, outgoing Chairman of the Board of Directors, Bernie Gollomp, Bendix, turned over the gavel to the new chairman, O. Tom Carver, RCA. Mr. Carver noted the outstanding support provided by the

sponsors: the Aerospace and Electronics Systems Society (AESS) and the Instrumentation and Measurement Society (SIM) of IEEE; and the participating societies: the Support System Technical Committee of AIAA and the Reliability Society of IEEE. He expressed his gratitude to previous member participants for their leadership and guidance in developing the successful conference.

The above article on AUTOTESCON was provided by Alan Plait. Mr. Plait is the Reliability Society ADCOM Representative on the AUTOTESCON Board of Directors.

Call for Nominations- ADCOM Class of '85

The Reliability Society Bylaw 4.1 directs the Chairman of the Nominating Committee to issue a Call For Nominations ADCOM Class '85 directed to Society membership. It further directs the Chairman to advise the Society Membership that a Nominating Petition carrying a minimum of 25 names of society members, excluding students, will automatically place the nominee's name on the slate to be voted by the ADCOM.

Nominations and/or nominating petitions should be sent by August 1 to:

Dr. T. L. Regulinski, Chairman
Nominating Committee
P.O. Box 295
Goodyear, AZ 85338

Chapter Reports

Central New England Council

The Central New England Council has just completed its fiscal year with the 20th Annual Spring Reliability Seminar on Thursday, April 29th. The theme for this year's seminar was "Assurance Technology Applications In The 80's." The presentations were varied on topics ranging from Lithium Cell Battery Reliability/Safety to Software Reliability.

The Keynote Address was given by Willis Willoughby, Jr., Deputy Chief of Naval Material (Reliability, Maintainability and Quality Assurance). Mr. Willoughby's address was a motivational talk on Engineering "Integrity." He spoke of the reliability engineer's responsibility to become deeply involved with the design in the early stages. He talked of reliability being a function of stress of three types: (1) Electrical, (2) Thermal, and (3) Mechanical. It is the responsibility of the reliability engineer to see that the equations for these stresses are written and the reliability is designed in.

Frank Kelleher from GTE-Sylvania spoke on "Applications of the Computer as a Tool for Reliability Engineering Decision Making." His presentation described a case history where a computer-aided reliability software program was used to establish component case and junction temperature limits consistent with prescribed reliability requirements.

"Innovations of Human Factors Engineering" was the paper given by Joseph De Sues of Rockwell International Corporation, Seal Beach, CA. Mr. De Sues is an advocate of utilizing prototypes or mockups that are built to size to fully understand and appreciate the human factors engineering tasks involved in design. His presentation discussed the mockup of a satellite as an illustration for this technique.

"Soft Error Rate Testing for Product Acceptance At Manufacturing" was the subject of Vin Kane of Data General Corporation, Westborough, MA. His talk concerned an alternative to the traditional 90% confidence test acceptance plan that is currently used in industry to qualify a computer peripheral for shipment.

Daniel Leach, Michael Paige, James Satko, and Wayne Urso co-authored a paper entitled "A Tool for Testing the User Interface in a Distributed Systems Environment." The presentation was based on the fact that the advent of distributed systems and the move toward more "friendly" user interfaces at workstations requires attention be directed toward thoroughly testing the user-workstation interface. The presentation discussed in some detail how this is accomplished.

George C. Apostolakis of the Federal Aviation Administration Technical Center, Atlantic City, NJ spoke on "Improved Methods for Determining Spare Part Requirements for Electronic Equipments and Systems." Mr.

Apostolakis discussed existing methods for determining spare part requirements and their limitations. He also talked of improved methods, which are extensions, modifications or simplifications of constant failure rate techniques.

"Lithium Cell Reliability/Safety" was discussed by David Dwyer of Sanders Associates, Inc., Nashua, NH. He talked of the different types of Lithium Cells and the advantages and disadvantages of each from both a reliability and a safety point of view.

William Grandy and William Rudow, both of GTE Products Corporation, gave a paper "Maintainability and Human Factors Engineering in the Development and Design of Fiber Optic Communications Equipment." The presentation was given by both gentlemen. It described the effects of integrating maintainability and human factors design criteria and guidelines early in the design stages of a fiber optic communications project. The multimedia presentation was very well done.

At the conclusion of the Annual Seminar is the Annual "End Of The Year" Banquet. Many thanks were given by the Chapter Chairman, Will Aubert (Sanders Associates) to the people who helped make the Seminar and the Year a success.

The results of the annual elections were announced. The slate of new officers for July 1, 1982 to June 30, 1983 is as follows:

| | |
|----------------------|---|
| <i>Chairman</i> | Susan Eames, Data General Corporation |
| <i>Vice Chairman</i> | Ed Naas, GTE, Sylvania |
| <i>Treasurer</i> | Gary Kushner, Digital Equipment Corporation |
| <i>Secretary</i> | Sid Gorman, Raytheon |

Montreal

In Montreal, Chapter activities are usually concentrated in the Fall and the Spring. In the Fall of 1981, the Montreal Chapter visited IREQ (Hydro-Quebec Research Institute in Varennes, near Montreal). In addition, a technical meeting was held in November. The guest speaker was Mr. R. Naggar from Hydro-Quebec. Mr. Naggar spoke on "Reliability, Availability, and Maintainability Decision Making under Uncertainty."

In March 1982, Mr. M. A. Baribeau from C.E.A. spoke on "Canadian Electrical Association's Equipment Information System."

The Montreal Chapter is also involved in organizing the 10th Annual Engineering Conference on Reliability, Availability, and Maintainability for the Electric Power Industry which will take place in May 1983.

Washington

The Washington Chapter's Report for this issue is unfortunately a sad one—reporting the death of John C. Maycock. Mr. Maycock was Chairman of the Washington Chapter of the Reliability Society in 1977-78 after going through the chairs of the Chapter. In addition, Mr. Maycock served on the Nominating Committee for the Northern Virginia Section.

Denver

The Denver Chapter is interested in holding the same training course. This is still in the planning stages.

Technical Meetings: The meetings were always preceded by a dinner. Thus far, all meetings were joint meetings with some other organizations. By doing this, attendance was much better, on the order of thirty to fifty people. The meeting dates and subjects:

October 1982 "VHSIC Program Advanced Packaging," cosponsored by CH&MT Society Chapter.

February 1982 "Recently Developed Optoelectronic Components," cosponsored by *Communications Society Chapter*.

March 1982 "Computer Hardware/Software Reliability" and "A New Direction in Electronic Reliability Engineering in the 80's," Cosponsored by the *Computer Society Chapter*.

April 1982 "The U.S./Japanese Quality Performance Gap," Cosponsored by ASQC.

Los Angeles

Training Activities: One two-day training course entitled "Hardware/Software Reliability Mini-Course" was held in November 1981. This course was attended by thirty people. The chapter felt that by offering this course as a Friday/Saturday meeting helped to convince the company's management that the employee was serious about the meeting.

Call for Papers

10th Annual Engineering Conference on Reliability-Availability-Maintainability for the Electric Power Industry.

The Conference will be held in Montreal, Canada on May 25-27, 1983. The Conference Committee is looking for papers covering the following topics applied to Electric Power Networks, Systems, Apparatus and related fields:

- RAM prediction procedures
- RAM verification techniques
- RAM specifications
- R & M program
- Availability improvement
- R & M of nonelectronic parts
- Software Reliability
- Reliability Assurance & Liability
- Integrated Logistic Support
- Maintenance and Maintainability
- Reliability & Product Safety
- Cost optimization
- Life Cycle Cost
- Data Banks & Statistical Analysis

Paper titles and abstracts of approximately 250 words are to be submitted in four copies by September 15, 1982 at the latest. They shall be written in French or English. The authors of selected abstracts will be notified by October 30, 1982.

The final texts written in French or English are due by January 30, 1983. They have to be accompanied by a 100 word summary. The time for presenting a paper shall be 20 minutes, followed by a question period.

Please address all texts and inquiries regarding the Conference to:

Mr. Joseph Mastrocola, Ing.
Technical Program Chairman
R.A.M. Conference
P.O. Box 577, Station Desjardins
Montreal, Que, Canada H5B 1B7
Tel. (514) 289-5245

IEEE Transactions on Reliability Special Issue Devoted to Management of Reliability Programs

The Editorial Board of the IEEE Transactions on Reliability is Planning a Special Issue of Papers Devoted to Management Aspects of Reliability Programs. The Basic Objective is to Provide a Literary Forum for the Exchange of Information Among Engineering Managers, Reliability Project Leaders/Managers, QA Managers, First Line Engineers, Corporate Management, and Other Engineering Management Professionals.

Invitation is Extended to Authors of Previously Unpublished Papers Dealing with Specifics of the Following Representative Areas of Reliability Management Discipline:

- 1) Program Planning/ Development/Implementation
- 2) Master/Task Schedules/Time Phasing/WBS
- 3) Manloading/Manhour estimates
- 4) Warranties/Incentives/LCC/R&M Cost Benefits

- 5) Factual Case Studies
- 6) Communication/Documentation/Training
- 7) Audits/Tracking/Control
- 8) Design Reviews
- 9) Cost Estimating/Cost Controls
- 10) Pricing/Budgeting Techniques
- 11) Comparative Practices-Commerce/Industry/Military
- 12) Production/Manufacturing Reliability Management

Papers are Solicited Dealing with Particulars Rather than Generalities of Suggested Topical Areas. Preference Will Be Given to Practical Papers over Theoretical Papers.

In Order to Assist the Board in Planning the Special Issue, Cooperation of Prospective Authors Is Solicited with the Following Target Dates:

- 30 July 1982 —Author's Letter of Commitment
 27 Aug 1983 —An Abstract of Approximately 600 Words and Biographical Sketch
 3 Dec 1982 —Three Copies of Full Text Draft not to Exceed 20 Double-Spaced Typed Manuscript Pages to Editor of Special Issue.
 3 Jan—28 Feb 1983 —Author-Referee Consultations

Letters of commitment containing brief description of paper essence and its approximate identification with the representative areas listed above should be sent to:

Dr. Thad L. Regulinski
 Goodyear Aerospace Corporation
 P.O. Box 295
 Goodyear, AZ 85338 USA
 Phone: (602) 932-7321

—Political Action Committee

(From page 5)

"The IEEE shall strive to enhance the quality of life for all people throughout the world through the constructive application of technology in its fields of competence. It shall endeavor to promote understanding of the influence of such technology on the public welfare."

The activities of the PAC shall be consistent with these objectives and will be intended to facilitate the process of communicating with elected officials and promoting those positions that are approved by a major board of the IEEE.

Organization: The IEEE/USAB PAC will be established as a pilot project for a period of three years. The initial organization will continue for this period, during which time the Trustees will be responsible for preparation of a proposed permanent structure and bylaws.

Continuation under the new structure and bylaws will require approval of both the USAB and the Board of Directors.

The key features of the initial organization are:

Short Courses By Dr. Dimitri Kececioglu

"Reliability and Maintainability Engineering, Reliability Testing, and Management", July 12-16, 1982, Instituto Mexicano de Control de Calidad, A.C., Thiers, 251 Penthouse, Mexico 5, D.F., Mexico City, Mexico, Tel. 250-10-99.

"Reliability Engineering", July 26-30, 1982, The George Washington University, Washington, DC 20052, Tel. (800) 424-9773 or (202) 676-6106.

"Reliability and Life Testing", August 2-6, 1982, University of California-Los Angeles (UCLA) Extension, P.O. Box 24901, Dept. K., Los Angeles, CA 90024, Tel. (213) 825-3344 or (213) 825-1295.

"Reliability Testing", September 20-24, 1982, The George Washington University, Washington, DC 20052, Tel. (800) 424-8773 or (202) 676-6106.

"Maintainability and Availability Engineering of Equipment and Systems", October 18-22, 1982, University of California-Los Angeles (UCLA) Extension, P.O. Box 24901, Dept. K., Los Angeles, CA 90024, Tel. (213) 825-3344 or (213) 825-1295.

Trustees

Eight trustees elected by the USAB, plus one ex-officio trustee (the USAB Government Activities Council Chairman).

Terms for elected Trustees will normally be for four years, staggered. During pilot project, Trustees will serve three years.

Treasurer

Trustees will appoint a Treasurer who is formally charged with receiving and disbursing funds.

Staff/Accounting and Reporting Assistance

During the pilot project, about one person-year will be required from USAB Washington staff. Accounting and required periodic reports will be contracted.

Operating Characteristics: Individual IEEE members who are U.S. citizens *may voluntarily* contribute to the PAC, up to \$5,000 per individual per year. Contributors receive a *tax credit* for such contributions, up to a maximum of \$50 per year or \$100 for a joint return.

The PAC will channel these contributions to candidates for public office, up to a maximum of \$5,000 per candidate per election. Initially, candidates in primary elections will not be eligible for IEEE/USAB PAC funds.

Conference Calendar

Machine Processing of Remotely Sensed Data July 7-9, 1982

This is the Eighth International Symposium on Machine Processing of Remotely Sensed Data. The purpose of this symposium is to explore the state-of-the-art of digital analysis and machine processing of remotely sensed data, particularly as related to crop production inventory and monitoring. Registration forms for this symposium may be obtained by contacting:

Continuing Education Business Office
 Room 110, Stewart Center
 Purdue University
 West Lafayette, IN 47907

Professional Communication Society Conference

October 13-15, 1982

The Professional Communication Society will hold a conference at the Colonial Hilton Inn in Wakefield, MA. The theme of this conference is "Sharpening Your Competitive Edge," focusing on the need to improve professional skills in engineering communications to keep pace with the ongoing technical revolution.

The registration fee will be \$150.00 for IEEE members and \$175.00 for non-IEEE members. Registration includes admission to all technical sessions, the published proceedings, and two luncheons. Checks should be made payable to IEEE Professional Communication Society and mailed to:

Mr. Johns Phillips
 RCA Service Company
 Route 38, Building 202-2
 Cherry Hill, NJ 08358

Inquiries relative to the conference should be directed to:

Ms. Lois Thuss, Conference Chairman
 The Johns Hopkins University
 Applied Physics Laboratory
 Laurel, MD 20707
 (301) 953-7100 Ex. 596

Third International Conference on Live Line Maintenance

June 6-9, 1983

Engineering in the Safety, Maintenance, and Operation of Lines Subcommittee of the Transmission and Distribution Committee (ESMO) is holding its 83rd Conference in Atlanta, GA, June 6-9, 1983 at Dunfeys Atlanta Hotel.

The purpose of this conference is to present new technology, methods, and procedures for work on energized lines. Field and laboratory demonstrations, tool and equipment displays, as well as technical paper presentations and panel discussions will be included. Tours through local manufacturer facilities and Georgia Power facilities will be available, as well as a Ladies Program.

For further information contact the Executive Vice President of the conference:

Jack Lawrence
 Georgia Power Company
 270 Peachtree Street
 P.O. Box 4545
 Atlanta, GA 30302
 (404) 526-2352

1982 Nuclear and Space Radiation Effects Conference

July 20-22, 1982

The conference will be held at Caesar's Palace in Las Vegas, NV. A tutorial short course of basic radiation effects on devices and systems will be given July 19th. Contact Publicity Chairman, Agustin Ochoa, Jr., Sandia National Laboratories, Organization 2144, Albuquerque, NM, 87185, (505) 844-6648 or (505) 844-2150.

Correction

In the April 1982 issue of the *Newsletter*, the reference to MIL-STD-781 on the bottom of page 12 is a misprint. MIL-STD-721 is the definition standard. Please note.

Welcome to New Members

The names and addresses of new members who joined from January 1, 1982 through March 31, 1982, are listed below. For U.S.A. members, they are listed by alphabetical order of their state. For members outside the U.S.A., they are listed by alphabetical order of their country's English name.

ALABAMA
Gary M. Griner
2109 W. Clinton Ave., Suite 800
Huntsville, AL 35805

ARIZONA
Willy J. Hom
91 W. Holly Ln.
Avondale, AZ 85323

William G. Howard, Jr.
2080 E. Alameda Dr.
Tempe, AZ 85282

Oscar R. Libed
207 North Maguire Ave.
Apt. 230
Tucson, AZ 85710

Frederick L. Pelton, Jr.
4011 W. Camelback Rd.
Apt. P26
Phoenix, AZ 85019

Jerry Wilcoits
P.O. Box 27163
Tempe, AZ 85282

CALIFORNIA
Thomas T. Chen
806 San Juan Ln.
Placentia, CA 92670

Stanley M. Cox
5 North Eldorado
San Mateo, CA 94401

Bennett G. Dy
4017 Corte Cancion
Thousand Oaks, CA 91360

Harold B. Field, Jr.
1912 Rockefeller Lane
Apt. 104
Redondo Beach, CA 90278

Ravindhar K. Kaw
1128 Machado Ln.
San Jose, CA 95127

C. A. Master
2532 Villa Vista Way
Orange, CA 92667

R. A. Mayers
272 Everett Ave.
Palo Alto, CA 94301

Donald E. McCall
1000 S. Fremont Ave.
Alhambra, CA 91802

Robert S. Miller
412 W. Vineyard
Oxnard, CA 93030

Jack Murray
19825 Labrador St.
Chatsworth, CA 91311

Jeannette H. Nelson
Computer Sciences Corp.-E404
650 N. Sepulveda Blvd.
El Segundo, CA 90245

D. A. Parkes
18976 Saratoga Glen Pl.
Saratoga, CA 95070

John B. Swenson
Science Applications Inc.
Box 2351
La Jolla, CA 92038

D. J. Tighe
32024 Allenby Ct.
Westlake Village, CA 91361

William J. Treacy
PSC 1
Box 2118
George AFB, CA 92392

J. R. Ward
8826 Greyling Pl.
San Diego, CA 92123

Belle W. Wei
2415 Fernwald Rd.
Apt. 16/E
Berkeley, CA 94720

COLORADO
Don G. Bosenbecker
6402 Fulpit Roak Dr.
Colorado Springs, CO 80907

Thomas W. Dodge
IBM Corp. Dept. 59H/022
6300 Diagonal Highway
Boulder, CO 80302

Alvaro J. Robleto
8200 Race St.
Denver, CO 80229

Dale Vanderlinden
Box 908
Lyons, CO 80540

CONNECTICUT
Ralph Triampo
65 Highgate Rd.
Apt. C-4
Newington, CT 06111

DELAWARE
E. F. Troy, Jr.
4508 Kingsgate Ln.
Wilmington, DE 19808

FLORIDA
M. Milosevic-Kvajic
Coulter Electronics Inc.
590 W. 20th St.
Hialeah, FL 33010

Charles M. Weems, Jr.
748 Friar Rd.
Winter Park, FL 32792

GEORGIA
James H. Cook, Jr.
3845 Pleasantdale Rd.
Doraville, GA 30340

IDAHO
Michael T. Dale
Rt. 3 Box 462
Blackfoot, ID 83221

ILLINOIS
Richard M. Bilof
7017 Miller Rd.
Wonderlake, IL 60097

E. J. Glenner
GTE Automatic Elec. Labs.
PO Box 2317
Northlake, IL 60164

George D. Kraft
1157 Mary Ln.
Naperville, IL 60540

H. L. Wolfman
3248 Echo Lane
Northbrook, IL 60062

INDIANA
R. F. Miller
3201 Susan Dr.
Kokomo, IN 46901

LOUISIANA
David R. Bell
T. L. James and Co. Inc.
PO Box 1646
Houma, LA 70360

MARYLAND
Frank F. Cruz
400 Browning Ave.
Apt. 2
Takoma Park, MD 20912

David L. Larson
PO Box 2241
Rockville, MD 20852

William S. Levin
1017 Downs Dr.
Silver Spring, MD 20904

MASSACHUSETTS
Bruce J. Hansen
20 Cabot Blvd.
Mansfield, MA 02048

Steven M. Kamin
Duracell International Inc.
Third Ave.
Burlington, MA 01803

Stanley G. Knutson
1455 Commonwealth
Apt. 404
Brighton, MA 01215

MICHIGAN
Joseph H. Mueller
1201 W. Pottawatamie
Tecumeh, MI 49286

Mehdi Zargham
1113-F University Village
East Lansing, MI 48823

MINNESOTA
Marshall W. Eklund
2205 E. 114th St.
Burnsville, MN 55337

MISSISSIPPI
Steven Hutchins
732 Thomas St.
Vicksburg, MS 39180

MISSOURI
Terry K. Gerald
12511-C James Patrick Lane
St. Louis, MO 63138

R. Ronald McBerly
Wilcox Electric Inc.
1400 Chestnut St.
Kansas City, Mo 64127

NEW HAMPSHIRE
J. William Thompson
ARC
471 Amherst St.
Nashua, NH 03063

NEW JERSEY
Edward V. Barabic
c/o Western Union Tel. Co.
One Lake St.
Upper Saddle River, NJ 07458

M. Brown
34 Blake Ave.
Cranford, NJ 07016

Adrian A. Dolinsky
9 Drummond Rd.
Westfield, NJ 07090

William G. Kochenbrod
PO Box 6
Keansburg, NJ 07734

John P. Koscinski
7 Hunt Ct.
Flemington, NJ 08822

Tsutomu Nishino
Sanyo Electric Inc.
200 Riser Rd.
Little Ferry, NJ 07643

NEW YORK
Herman Chiu
111 Eldridge St.
Apt. 10
New York, NY 10002

Kanwaljit Dhir
37 Robin Ln.
Plainview, NY 11803

Emory J. Eutcher, Jr.
24 Fairfax Rd.
Fishkill, NY 11803

NORTH CAROLINA
Salvatore L. Schifano
1001 WT. Harris Blvd.
Charlotte, NC 28257

OHIO
Elmer W. Bartko
12256 E. Shiloh Dr.
Chesterland, Oh 44026

John D. Crabtree
2581 8th St.
Cuyahoga Falls, OH 44221

John S. Dickson
69 Grosvenor St.
Athens, OH 45701

Desh B. Gupta
1005 Thorndale Dr.
Dayton, OH 45429

Chimanlal P. Patel
10409 Twin Oaks Dr.
Rt. 3 Twin Oaks East
Cambridge, OH 43725

OKLAHOMA
John C. Hamilton
6914 E. 86 Pl.
Tulsa, OK 74133

OREGON
Shari J. Morwood
Hewlett-Packard Co. TIC-3B
1000 N.W. Circle Blvd.
Corvallis, OR 97330

Gary L. Oplinger
Rt. 1 Box 34K
MC Minnville, OR

PENNSYLVANIA
Doyle J. Edmiston
PO Box 31
Reading, PA 19603

Chi-Mo Kim
4976 Apple Dr.
Reading, PA 19606

James R. Lindquist
873 Goshen Rd.
Newtown Square, PA 19073

Harold T. Maguire, Jr.
125 Carnegie Pl.
Pittsburgh, PA 15208

Lalan G. Miller
140 Tanglewood Dr.
Pittsburgh, PA 15221

Leonard P. Roberts, IV
1085 Persimmon Court
Fairview, PA 16415

James E. Thompson
29 E. Benedict Ave.
Havertown, PA 19083

SOUTH CAROLINA
H. L. Able
1074 Meader Ln.
Mt. Pleasant, SC 29464

Bruce S. Ford
Indigo Hall
Apt. 37
Georgetown, SC 29440

TENNESSEE
Willis P. Poone
Oak Ridge National Lab
PO Box Y Bldg. 9104-1
Oak Ridge, TN 37830

Cecil J. Presnell
PO Box 1255
Johnson City, TN 37601

TEXAS
William D. Boles
3510 Sycamore Shadows
Kingwood, TX 77339

Richard W. Garvin
PO Box 226015
Mail Station 289
Dallas, TX 75266

Vernon D. Henderson
101 Hackberry
Apt. 1415
Clute, TX 77531

Tedd C. Knisley
5601 Chiltern Hills Dr.
Apt. 905
Fort Worth, TX 76112

Anthony C. Pace
Texas Inst.
PO Box 226015
M/S 269
Dallas, TX 75266

George D. Tucker
6118 Waltway Dr.
Houston, TX 77008

VIRGINIA
Albert Van De Griek
111 S. Kensington St.
Arlington, VA 22204

Larry Irvin
8667 Bruton Parish Ct.
Apt. 303
Manassas, VA 22110

WASHINGTON
John A. McGarvey
14206 S.E. 10th Pl.
Bellevue, WA 98007

WISCONSIN
Raymond W. Duncan
2741 N. Richards St.
Millwaukee, WI 53212

David Slowinski
Cray Research Inc.
Highway 178 North
Chippewa Falls, WI 54729

AUSTRALIA
Raymon M. Greenwood
PO Box 195
Morwell VIC 3840
Australia

Brian M. Lees
Dept. of Elect. Eng. Ballarat Cae
Gear Ave.
Mt. Helen Ballarat VIC 3350
Australia

BRAZIL
Geraldo R. Oliveira
VA D Joac 6 74-BL A
Apt. 184
4000 Salvador Bahia, Brazil

R. Ferreira Pinheiro
Rua Maxaranguape No. 613
Tirol
Natal RN, Brazil 59000

CANADA
Thomas R. Darlington
Spar Aerospace Ltd.
21025 Trans Canada Highway
Ste. Anne Bellevue, Que, Canada
H9X 3R2

Clemont C. Fong
972 Bough Beeches Blvd.
Mississauga, Ont., Canada
L4W 2B5

Yat F. Kwong
9820 107 St. 7th Floor
Construction Services Branch
Edmonton, Alta, Canada
T5K 1G3

William R. Miller
#105 4664 Lougheed Highway
Microtel Pacific Res. Ltd.
Burnaby, BC, Canada
V5C 5T5

Neville Rivington
PO Box 6088
Postal Station A
Montreal, Que., Canada
H3C 3Z8

Larry Schwartz
1231 Castlehill Cres.
Ottawa, Ont., Canada
K2C 2B2

ENGLAND
Patrick D. T. O'Connor
62 Whitney Dr.
Stevenage
Herts SG1 4BJ England

Miles A. Redfern
10 High Chase Rise
Little Haywood
Stafford, England ST18 0TY

Eva Windebank
79 Leigh Gardens
London, England NW10 5HN

FINLAND
Seppo J. Nevalainen
Louhentie 11 D 67
02130 Espoo 13, Finalnd

Patrick Ostman
Matinkatu 28 D 89
SF-02230 Espoo 23, Finland

FRANCE
Marie J. Johannes
Merlin Gerin Usine B2
Documentation
Grenoble Cedex, France 38050

Marcel S. Menahem
5 Avenue Newton
Clamart, France 92142

Jean-Yves Mercury
CII Honeywell 1Bull
68 Route De Versailles
78430 Louveciennes, France

Jean-Marie Rata
15 Rue D'mautpoul
Paris, France 75019

Willem P. Roelandts
Hewlett-Packard
5 Avenue Raymond 1Chanas
Eybens, France F38320

HONDURAS
Gilberto Ramos Dubon
Enee Canaveral
Apdo Postal 106
San Pedro Sula, Honduras

HONG KONG
Lee Shui-Chun
121 Block 17
Sam Mau Ping Estate
Kowloon, Hong Kong

ICELAND
Edvard G. Gudnason
Vesturberg 74
Reykjavik, Iceland 109

Jon Por Olaffson
Gigjulumdur 8
Garobeer, Iceland 210

INDIA
Krishna Gopal
CC-12 Regional Eng. College
Staff Residencies
Kurukshetra 132119, India

Ashok Gupta
Govt. Eng. College
Elec. Eng. Dept.
Ujjain M P 456009, India

K. M. Hebbar
Karnataka Regional Engr. Coll.
Srinivasnagar 574157
Karnataka State, India

Vasudeo J. Kanitkar
15A 52WFA Kapol Bagh
New Delhi Pin 110005, India

IRELAND
Brian K. O. Dowd
Analog Devices
Raheen Industrial Estate
Limerick, Ireland

ISRAEL
David Bier
Tel-Rad PO Box 50
Lod, Israel

ITALY
Enrico Baldini
via L. Magrini No. 7
Bergamo 24100, Italia

Toseo Federico
c/o Cselv-via
G. Reiss Roholi No. 274
10148 Torino, Italy

Renzo Rogate
Via Tadini No. 15
Novara, Italy 28100

Giuseppe M. Veca
Via Eudossiana 18
00184 Rome, Italy

JAPAN
Hirokazu Harima
12-403 1 Ban 6 Chome
Nakayama-Satsukidai
Takarazuka-City
Hyogo-Pref, Japan 665

Masahiko Ikeda
c/o Hitachi Totsuka Works
Hitachi Ltd.
Totsuka-Machi Totsuka-Ku
Yohohama 244, Japan

Michitaka Kameyama
Tohoku Univ.
Elec. Engr. Dept. AOA
Aramaki Sendai, Japan 980

Tosio Kitagawa
Kokusai-Joho-Ken Fujitsu Ltd.
140 Miyamoto Numazu-SHI
Shizuoka 410-03, Japan

Hirimitsu Kumamoto
Kyoto Univ.
Dept. of Precision Mech.
Faculty of Engrg.
Kyoto 606, Japan

KUWAIT
Ahmed M. Helmi
Post Office Box 30
Mina Alzour
Kuwait, Kuwait

KOREA
Yong IL Choi
Gold Star Tele. Electric Co. Ltd.
#600 Hogae-Dong
Anyang City

MEXICO
Alberti De Leon
Guadalupe 1201
Colonia Guadalupe Victoria
Tampico Tamaulipas, Mexico

Kyung Ki-Do 171 Seoul, Korea
Yun Hyung Chung
Compt Ctr. of Han Yang Univ.
Hangdang-Dong 17
Sungdong Ku
Seoul, Korea 133

Leon Smursz
Peten 103
Mexico 12 DF, Mexico

Kim Gun Joong
Dept. of Elect. Eng.
Chungnam National Univ.
Daeduck Science Town
Taejeon, Korea 300-31

NETHERLANDS
A. G. De Visscher
Muzenlaan 82
5361 GE Eindhoven, Netherlands

Yong D. Kim
San 5 Weoncheon-Dong
Suweon-SI
Gyeonggi-Do, Korea 170

NIGERIA
Olusola O. Ijaola
PO Box 2181
Surulere Post Ofc.
Surulere
Lagos, Nigeria

Jung Kee Park
20-1303 Jangmee Apt.
Jamsil 6 Dong
Kangdong-Ku
Seoul, Korea 134

SINGAPORE
Cheong Phong Wong
Block 157
64-C Mei Leng St.
Singapore 0314, Singapore

SPAIN
Javier Corbella
Republica Argentina 29
Barcelona 6, Spain
I. Perez-Arriaga
I C A I
Alberto Aguilera no. 23
Madrid 15, Spain
Robert L. Pigue
Prat De La Riba 33
Mataro Barcelona, Spain

SRILANKA
Chelliah Vicknarajah
87 Brown Road
Jaffna, Srilanka

SWITZERLAND
Juan R. Martos
77 Grand Rue
1196 Gland, Switzerland

THAILAND
Vuchara Asavakul
Faculty of Engineering
Chiang Mai Univ.
Chiangmai, Thailand

VENEZUELA
Ernani B. Randon
DTO Electronica
Univers. Simon Bolivar 60659
Caracas, Venezuela 1080
Manuel M. Ruella
Apartado Postal 47834
C C Los Chaguaramos
Caracas 1041, Venezuela

WEST GERMANY
Herbert Eirett
Hoohschule Der Bundeswehr
Werner Heisenberg-Weg 39/35
Neubiberg D8014, West Germany

Uwe E. Jaeger
Fraunhofer Inst. Fuer Info.
U Datenverarbeitung
Sebastian-Kneipp-Str 12/14
D 7500 Karlsruhe 1, West Germany
C. J. Mueller
IM Heidewinkel 2F
D-1000 Berlin 13, West Germany

ZIMBABWE
Mosad El-Missiry
Elec. Eng. Dept.
Faculty of Eng.
Mount Pleasant
Salisbury, Zimbabwe

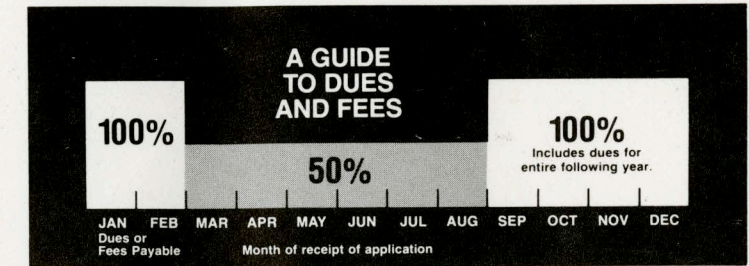
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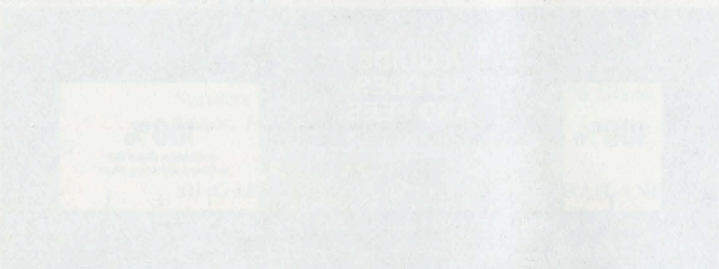
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