

# IMAGE

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## ATD Adopts Long-Term Aggressive Strategic Plan

On Tuesday, November 27, ATD's President Clayton Williams delivered his first annual "State of the Division" address to employees. This year's theme, "Building for the Future" highlighted ATD's strategic plan and the actions he and top management have taken and will take to position the division for the competitive marketplace of the 1990's. Here, Mr. Williams summarizes the plan, how it affects various organizations of the company and how it will impact all employees.



Strategic planning is a tool used by ATD to focus its resources on long-term goals established collectively by the division's management. Strategic goals usually take years to achieve. This means that our strategic plan must be responsive to changing market conditions, and that it will be revised as needed.

ATD's strategic plan for the five years beginning in Litton fiscal year 1991 (August 1, 1990) was established during a time of great uncertainty. The reduction of the Soviet threat, the reuniting of Germany, and the subsequent call

for a reduction of defense expenditures and a "peace dividend" have all impacted our planning process. As we look to the future, we must find ways to grow in this budget-cutting environment. I think our plan has addressed this most effectively.

ATD possesses great strengths in its core markets, namely the ALR-67, ALR-46 and the ALR-69 radar warning receivers. With the largest installed base of any manufacturer, and with loyal U.S. Navy and Air Force customers, our core business should yield substantial returns for years to come.

With this in mind, we've outlined five areas of focus for the years to come.

1. The strategic plan calls for **increased investment in our core product line**. Investment is required to improve product performance and widen our marketing efforts so that we can increase our share of this declining market. We'll also **increase our spending on research and development to keep core products "state of the art"** and to provide performance characteristics competitive with existing and proposed product offerings by other companies.



(continued on page 3)

## Aerospace On Target, Receives Four New Contracts

ATD's Aerospace Programs was awarded three new seed technology contracts and a follow-on contract during the first quarter of this fiscal year. The three new awards include:

**LISA**, a system concept development program to evaluate affordability versus performance issues for a major electronic support measures (ESM) program.

**SLC**, a submarine laser communications system employing acousto-optic tunable filters technology for underwater communications.

**System 6**, a key international award for specific emitter identification (SEI) in multi-platform applications.

In addition, a **RACY** program follow-on contract was received. The excellent performance on RACY I led to the award of this all important multi-mission concept design and demonstration program.

Dr. Larry Langley, vice president of aerospace programs, said that "While these are small research contracts, they will lead to more substantial awards in the future."

### In This Issue:

ATD Maps Strategies For The Future

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Giving The United Way

ATD Business Update

Litton World News Roundup



Each month "Image" will interview various members of top management about ATD's strategic plan and its implementation. How is each department contributing to the plan's goals? How are we doing against the plan? Dr. Larry Langley, vice president of aerospace programs for Applied Technology, comments on new developments and opportunities for his group in an interview regarding the strategic plan that follows.

## Aerospace Programs: A Cornerstone Of The Strategic Plan



Dr. Larry Langley, vice president of aerospace programs, reports that the department is ahead of plan and that the future looks very bright.

Litton Applied Technology's commitment to develop Aerospace Programs was based upon leveraging the company's core business areas with advanced technology developments such as Specific Emitter Identification (SEI) so that new markets could be developed.

Here are some market areas that are emerging after several years of research and development:

**1. Space Processing Systems.** Hi-Rel versions of ATAC-16 are the heart of this relatively mature business segment. During the past five years, it has produced revenues of about \$40 million dollars and has produced products like our advanced microcomputer for the Magellan and Galileo space missions as well as products for other classified customers. Excellent performance in the Space Processor Systems business area will allow us to grow into other customer communities, including supporting our sister division, Itek Optical Systems in Lexington, Massachusetts.

**2. Satellite Warning Systems.** Our primary endeavor over the last three years has been supporting the Grumman Boost Surveillance Tracking System (BSTS) program. The BSTS program utilizes our core business product line, advanced radar warning systems, as a design basis for a space warning system. From that starting point, we fused laser warning sensors and other sensor systems, resulting in a very mature multi-sensor warning system. What makes this program exciting is that its technology base can be used to enhance our core business.

**3. Collections Systems.** These systems detect and identify very specific parameters, no matter what the disguise, from a variety of submarines, planes, and helicopters. Over the last 18 months, ATD has been awarded five key advanced concept development and test programs. Each has been with a different customer, allowing us to broaden our customer base. Two extremely difficult test programs have just been conducted with excellent results, providing credibility and customer confidence in ATD's ability to perform in this exciting business area.

Our goal for the early 1990's is to convert these development programs into full-scale production contracts. Our successes so far and involvement with five distinct customers makes Aerospace Programs an integral part of Litton Applied Technology's future. We're ahead of the plan right now, and that's where we intend to stay.

## ATAC Guides Magellan To Venus, Galileo To Jupiter

ATD's advanced microcomputer ATAC, succeeding an earlier unit which helped guide NASA's Magellan spacecraft on a 15-month, 300 million mile journey to Venus, is now keeping the Mission Galileo probe on course to Jupiter.

The ATAC on-board the Magellan spacecraft kept the vehicle on course by computing data from the spacecraft's star sighter. It then provided the vehicle attitude corrections and control outputs that guided the spacecraft in its journey to Venus.

Mission Galileo is a six-year, 2.4 billion mile journey that took the spacecraft on a looping path past Venus in February 1990 and will be back within 620 miles of Earth in December. Two years later, the space vehicle will pass Earth again at 200 miles altitude, and it will reach Jupiter in December 1995 for a two-year orbit.

Applied Technology's debut into space computers was in 1978 when the California Institute of Technology's Jet Propulsion Laboratory awarded the division a contract for a space qualified, radiation hardened unit. The computer developed for this contract, designated the ATAC-16MS, was derived from the main processor for the U.S. Navy's ALR-67 power management and radar detection system.

## ATD Image

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## Lockheed And Applied Technology Team To Develop Tunable Optical Filter

Applied Technology's Aerospace Programs business group will participate with Lockheed in the development of a dispersive acousto-optical tunable filter (DAOTF), having just received a contract from the Defense Advanced Research Agency (DARA) and the Office of Naval Research (ONR). They are to develop advanced filter technology with application for satellite-to-submarine laser communication systems as well as other laser-based systems.

The filter will utilize acousto-optic diffraction in a dispersive birefringent solid state material which is a design that evolved from the acousto-optical tunable filter (AOTF) developed by Applied Technology in the mid-1970's.

The program is planned for three phases which are (1) material characterization and breadboard

design, (2) system analysis and breadboard fabrication/test, and (3) development of an advanced development model (ADM).

Phase 1 is scheduled to be completed in nine months; phase 2 at the end of 12 months. Phase 1 funding is \$200,000 and phase 2 will be \$400,000. The full scale development and demonstration phase has not yet been defined but should have a contract value of several million dollars.

"If the full potential of this technology is realized as expected, the development and production configurations of the filter would apply to several platform configurations," said Dr. Larry Langley, vice president of aerospace programs. "Further, the acquisition of this new technology development should be a major stepping stone for the growth of ATD's Aerospace Programs business group."



# Litton Names New President and Chief Operating Officer



Alton J. Brann brings 18 years' experience with Litton to his new position as president and chief operating officer of the company.

Alton J. Brann, a Litton senior vice president and group executive, has replaced Roland O. Peterson as president and chief operating officer of the corporation. He was also elected to the board of directors at the annual shareholders' meeting in December.

Peterson has been with Litton for 30 years. He will continue as senior vice president for Litton's Components and Industrial Products activities and will also serve as the chief scientist of the corporation, coordinating technology throughout Litton.

Brann, 48, joined the company in 1973 at the Guidance & Control Systems division. He was named president of the division in 1983 and elected a corporate vice president in 1984. He was appointed group executive for Navigation, Guidance & Control

Systems in 1986 and elected a corporate senior vice president in 1987. He assumed responsibility for the company's Components and Industrial Products business in early 1988.

Prior to his Litton career, Brann was with Dynamics Research Corporation of Wilmington, Massachusetts, for ten years where he served as manager of advanced programs in the Systems division.

A native of Portland, Maine, he earned a bachelors degree in mathematics from the University of Massachusetts at Boston. He is a member of numerous professional associations, including the Optical Society of America, the Institute of Navigation and the Institute of Electrical and Electronics Engineers, where he is a senior member.

## The United Way: Imagine... What If Everybody Gave?

Many of you are involved one way or the other with a United Way agency. Your son may be in Boy Scouts, your daughter may participate in a YWCA soccer league, or you may be a volunteer with Big Brothers/Big Sisters, the Second Harvest Food Bank or the American Red Cross. One way or another, United Way agencies touch our lives, and we in turn can reach out to others through our donations to the United Way.

This year, your contributions will enable more than 900,000 people in Santa Clara County, nearly one in every four people who live in the county, to receive the services they need.

The United Way's overhead has always been the lowest of any major charitable organization, and funds raised stay right here in Santa Clara County. Best of all, more than 70% of the funds raised comes from caring individuals just like you.

ATD's official United Way Campaign ended in early December, and employees contributed nearly \$50,000. If you haven't already, you can still contribute to the United Way any time during 1991. It's not too late.

To all of those who have contributed... thanks for giving the United Way.

## A Look At The Strategic Plan (continued from page 1)

2. In addition to investing in our own technologies and product development, the plan calls for continual evaluation of products and technologies, the acquisition or licensing of which will provide a competitive advantage to ATD. Several opportunities have already been identified and are being pursued.

3. New market opportunities, using core product technology, like the development and sale of new products for seaborne platforms, hold great promise for us. Our products are technically competitive, and we have received strong interest from customers already.

4. ATD's long and arduous struggle to enter the aerospace business is beginning to show signs of success. The application of technology developed over the years as well as our expertise in aerospace requirements has resulted in the development of unique and highly competitive products for this closely controlled market. We look for accelerated growth and plan on capturing a substantial share of the aerospace market.

5. Finally, ATD will aggressively pursue sales in overseas markets where governments will be upgrading their military



hardware to protect against traditional regional threats. The current conflict in the Persian Gulf is just one example of ongoing regional problems which indicate continued growth in foreign markets. As ATD implements its Strategic Plan, you'll see a larger and larger percentage of revenues coming from markets outside the U.S.

Now comes the difficult part, the implementation of the strategies called for in the plan. Detailed marketing plans have been formulated and are being implemented. R & D funds are being expended. Product improvements are moving from the drawing board to the lab, and licensing agreements are currently being negotiated.

The rest depends on people, and it is our intent to keep you informed in upcoming issues of "Image" as to how we're doing against plan, and what new developments are happening in each of your areas.

Even in just this short time, we have seen tangible results from our planning efforts; new contracts have been secured and we will introduce new products shortly. However, the true success of our strategic plan will be evidenced by long-term growth and increased profitability of the division.

The strategic plan is our road map. Our destination is an ATD of the future, one that is sound, responsive and successful. There will be a few bumps in the road along the way, but we plan to complete this journey.....with your help.



*I had the distinct pleasure of going to Warner-Robbins Air Force base on the 26th of September to receive the Blue Ribbon Contractor Award on your behalf. It was quite an honor. The Air Force attaches great importance to this award, and I'm very proud of you all for making it possible.*

Clayton Williams,  
President ATD



*What's really significant about this award for me is that when I first started with ATD, Warner Robbins had just about written us off. They gave us one more chance called the ALR-69 program. Now, some 12 years later, we won this award, and we did it with no delinquencies. For those of us in the program office and as your representatives to the Air Force, it makes our life a lot easier knowing that we can be trusted to deliver quality products on schedule.*

Tom Isenburg, Director  
Air Force Programs



## Behind The Scenes

Winning the Blue Ribbon Award does not come easily. It was earned over a period of time, and it required real team work.

For instance, the people in proposals and contracts modified contracts and worked with the programs office to submit proposals on time and with every new detail required.

Procurement made sure that all needed materials were in place, on time for assembly. Assemblers built quality products and HMD built quality components. Both groups provided all the support ATD needed when it was needed. Systems test made sure that all end items met specifications. Operations and production control assured on-time delivery.

Summing it up, Mohsen Sadri, ALR-46/69 program manager, said, "It required everyone being responsive to customer needs, supporting contractual changes and accelerations, meeting proposal dates, building in quality and reliability, supporting schedules and working together to make sure the customer got what it wanted when it wanted it. I'm very proud of us, and I know this award will make it possible to reach and exceed our business goals in the upcoming years."





# Employees Celebrate

ATD won the U.S. Air Force's Blue Ribbon Contractor Award in late October, becoming a member of a very elite group of suppliers to the military. The prestigious award was presented to Litton's Applied Technology division for superior delivery, performance and quality.

To celebrate this award and to acknowledge the many contributions made by the ALR-46/69 program team, ATD's executive staff and the Air Force programs office invited all who worked on the program to a "Blue Ribbon Day" picnic Friday, November 2 at 2:30 at Washington Park in Sunnyvale.

ATD President Clayton Williams and Max Bowery, vice president of programs, were chief chefs along with other ATD vice presidents and managers. Hamburgers, hot dogs, salads and all the trimmings, were served up to employees in grand style. There were also plenty of thank you speeches from Congressman Norm Mineta, Clay Williams and Tom Isenburg, programs director, who made sure all who contributed to the award knew they were appreciated greatly.

"We really wanted to celebrate this award," said Mohsen Sadri, ALR-46/69 program manager. "Winning this award was a real team effort, and it was earned by many people over the course of several years. In addition, the award will have ongoing implications for ATD in bidding new business in the future. It was quite an accomplishment for the company and for all who worked so hard to make it happen."



## Blue Ribbon Award



Congressman Norm Mineta joins ATD President Clayton Williams in congratulating employees on receiving the U.S. Air Force Blue Ribbon Award.

### Congressman Mineta On The Economy, The Persian Gulf Crisis And Other Concerns

While at ATD's picnic celebrating the Air Force Blue Ribbon Contractor award, Norm Mineta, congressman of the 13th district, consented to an interview. What follows are the highlights.

#### What are the greatest concerns voters in our district have?

The economy. Voters are concerned that the United States is heading for a recession, they're wondering which way interest rates will go, and they're interested in the recent Federal budget discussions and agreements. The Persian Gulf situation has also impacted the economy, driving up the price of oil.

It's having an adverse impact on the economy because we are spending \$1 billion a month to support our military in Saudi Arabia and the Persian Gulf. The magnitude of this military expenditure highlights the importance of the Air Force Blue Ribbon Contractor Award just presented Applied Technology. It's critical during this time of reduced defense budgets that we maximize the use of our defense dollars.

#### How will defense cuts effect contractors here in the valley?

The defense budget has declined from \$305 billion to \$286 billion, and these cuts have forced the

Department of Defense to restructure and reprioritize. Past emphasis on programs like AWAX, SDI, the B2 bomber and large missiles has given way to conventional Army, Air Force and Navy forces that are highly mobile and deployable.

This means there will be greater competition for fewer and smaller contracts. As the domestic market shrinks, U.S. companies will do more business internationally, but they'll face stiff competition from foreign companies that do not have the same constraints as U.S. companies. U.S. companies will have to counter with high quality products that employ cutting-edge technology.

#### What do you and other members of Congress think will be the final result of U.S. involvement in the Persian Gulf?

There are a number of Mid-East scenarios, and each would trigger a different U.S. response. There are possible Iraqi actions that would necessitate a strong U.S. military response. The feeling now in Washington is that there will be some military action within the next two months, definitely before March when the winds in the region will effect our military effectiveness. The hope, however, is for a peaceful conclusion to the situation as soon as possible.

*This kind of award doesn't come easily. Thank you all for helping the Air Force do the job that they're doing, within their time constraints and within their budget restraints as well. Through your efforts we're able to make sure our shrinking defense dollars are stretched and put to as good a use as possible. Keep up the good work. I know that next year there'll be another picnic for you to celebrate even more awards.*

*Norm Mineta,  
Congressman 13th  
District*



# CONGRATULATIONS!

"Tonight, we honor and recognize those of you who celebrate special anniversaries with Applied Technology during 1990. All of you have played an important part in the company's more than three decades of accomplishments, accomplishments which have made us the world's leading producer of quality radar warning systems. Thanks to you, we have served our nation and our allies well."

Clayton Williams,  
President ATD



## ATD Honors Employees

People, that's what Litton Applied Technology's all about...people who work, raise families, get involved in the community and have outside interests but who always dedicate some extra time and effort to get things done right and done on time. People, just like those who were invited to attend a special party in their honor Friday evening, November 9.

ATD held its tenth annual service awards dinner that night, honoring employees who

celebrated their 10th, 15th, 20th and 25th anniversaries with the company in 1990. In all, 77 people were feted at a dinner and dance at the Marriott Hotel in Santa Clara.

In remarks after dinner, ATD President Clayton Williams gave special credit to those being honored. "All of you have played an important part in the company's more than three decades of accomplishments, accomplishments which have made Applied Technology the world's leading producer of quality radar warning systems."

"We thank you for your past contributions and commitment to Litton Applied Technology. Though the company has struggled with the ups and downs of the defense industry, it has emerged from its first three decades as a strong company. Building on our strengths and capitalizing on our past experiences, we're well prepared to meet the challenges that lie ahead," he concluded.



With Glasnost have come many benefits, one of which is the freer exchange of ideas, which in turn has led to greater travel opportunities for people of Russia and the rest of the world. One of the first ATD employees to visit Russia was Dr. I. C. Chang, who was senior staff engineer, advanced system concepts, at the time. Though he has retired from the company,

his experiences and insights are very enlightening.

Dr. Chang was invited to attend the Leningrad International Workshop on Acousto-Optics held June 27-July 1 last year. Sponsored by the Soviet Academy of Science, Dr. Chang was one of eight invited speakers from America, and he spoke on a review paper entitled "Progress

of Acousto-Optic Devices" The paper discussed the theory and applications of Acousto-Optic (AO) devices.

More than 200 people from 10 countries attended the workshop. Here are his views on the conference and on Russia today as it emerges from nearly 75 years of communist rule.

## With Dr. I. C. Chang In Russia

### Why did the Russians call for this conference so soon?

As an international seminar, it covered research and developments in the field of acousto-optics, and those of us from outside Russia guessed that the Russians doing research in this field really wanted to learn how they could do business with the rest of the world.

You see, they are very good in theory, just the opposite of the Japanese who make things happen by converting research into marketable products. For nearly 80 years, Russian scientists and researchers have not had to convert their efforts into products.

### How far behind the rest of the world are they?

They are at least 10-15 years behind us, and the sophistication of their lab equipment lags even further.

I visited the Leningrad Institute of Aviation Instruments, a local host for the conference. During a four-hour tour of the laboratories of the electrical engineering department I saw only one PC, a clone made in South Korea. They have no hard currency to trade yet with the rest of the world; so they can't buy the latest computers and equipment.

They can't buy a scope or a sweeper because they don't have any in Russia to buy. They use old equipment and spend a lot of time repairing it or they have to build the electronic instrument themselves. Can you imagine building your own scope or the computer you need to conduct your research! We just fill out a purchase requisition, and in a relatively short time, whatever we ordered is shipped to us.

### Was there a free exchange of information?

They were eager to show us what they could do, primarily to find a market for their technology. In fact, they told us much more about their research than we told them about ours.



I think their purpose was to pick our brains about what they are doing wrong or how they could sell what they have developed. They also wanted to learn about competitive pricing.

### What do they have to sell?

Unfortunately, they don't have much because they have lagged behind. They've been doing research without practical application and without asking what they are doing it for.

### What did you learn from the conference and the experience?

I was surprised that the Russians were so far behind us in technology. Their major weakness is in electronics design and device processing. They seem to be very good in thermal, mechanical designs. Their packaging may be a bit clumsy, but the hardware they build seems quite reliable. They are also excellent in math. Above all, they want to learn from us how to turn their R & D into commercial products. I think that has to do with recent change in their economy. The government will no longer be able to sponsor all the research and development it has in the past. Now, the scientists and engineers must find ways to fund themselves. It has become a

serious deterrent to their R & D efforts, and will probably cause them to fall farther behind.

### Were you able to tour the country freely?

There were always guides with us, but they were very friendly and eager to learn more about the U.S. and other countries represented at the conference.

We arrived in Leningrad on a Monday night, and there was no sunset. To me it was very strange. Our hotel was big and impressive on the outside, but I would rank it slightly below a Motel 6. On Tuesday, we visited the Institute that sponsored the conference, and Wednesday we saw the summer palace of Peter the Great. We wanted to go to the Hermitage Museum, the largest museum in the world, but the lines were far too long for the time we had. There are lines everywhere in Russia! The conference began on Thursday and ran through Saturday; so that was most of the site seeing we did.

My impressions of the people were very positive, but they are in for very difficult times. The food was bad. Though there was lots of it; there was not much variety. We had lots of bread, ham and cabbage, and most things were very salty to my taste. One thing they told us is they think that their temperament is very much like the Italians. They are very passionate about things and wave their hands a lot. There's lots of hand waving. It makes me think that maybe Kruchev's shoe-pounding incident was just his normal Russian behavior.

### Will there be more conferences in Russia for you to attend?

The next conference of this type is scheduled for 1992 in Poland. I'd like to attend if invited. The more I see of their problems makes me very glad to be working right here at ATD, but I do wish them good luck.

## Litton World Roundup

### Lufthansa Contract Awarded Aero Product Division

Lufthansa selected Litton's new LTN-101 Flagship (TM) Global Positioning Air Data Inertial Reference System for its new fleet of Airbus A-340 aircraft. Delivery of the first 15 aircraft with the LTN-101 Flagship GPADIRS is scheduled for 1992. Litton Aero Products also has agreements with Sabena Belgium World Airlines, UTA French Airlines and Air France for the Flagship system on the A-340 aircraft they have on order.

### Litton Data Systems Awarded \$10.1 Million Navy Contract

Litton's Data Systems division has won a \$10.1 million contract from the U.S. Navy for production of 600 additional hand-held digital communications terminals and spare parts for the U.S. Marine Corps. The book-size terminals, used to electronically format, display, transmit and receive alpha-numeric messages and maps, are also used by the U.S. Army and Air Force.



## Litton World Roundup

### \$202 Million Navy Contract Goes To Litton Data Systems

The U.S. Navy has awarded Litton Data Systems an additional \$202 million to produce seven AN/TYQ-23(V)1 and 26 AN/TYQ-23(V)2 tactical air force operations modules for the U.S. Marine Corps and the U.S. Air Force. The new award includes money for spares, related equipment and training. The transportable modules provide the facility to control the employment of friendly aircraft in the full range of tactical air missions, including interception of hostiles, enroute traffic control, refueling, search and rescue, close air support and interdiction.

### Westinghouse Selects Litton Inertial Measurement Units

Litton's Guidance & Control Systems has been selected by Westinghouse Electric to provide inertial measurement units for radar application on the U.S. Navy's new A-12 Advanced Tactical Aircraft program. Under the multimillion dollar contract, Litton will modify its current LR-85 production unit to provide motion compensation and precise angle references for aircraft radar. The unit will be reduced 30% in size and weight for the A-12 application.

## ATD Welcomes



### Carl Ludwig Appointed VP Of Quality Operations

Carl Ludwig joined ATD in August as vice president of quality operations. He oversees ATD's manufacturing, quality assurance, material, technical services and facilities directorates.

He has over 25 years of experience in manufacturing and quality assurance. Most recently with Siemens Pacesetter Systems, a leading manufacturer of cardiac pacemakers, Ludwig was vice president responsible for all product assurance, including reliability, quality assurance, software QA, process validation, and supplier and internal quality programs.

Prior to that he worked for Litton Guidance and Control Systems in various management positions in manufacturing, production test and product assurance, from 1975-1985 and as manager of quality assurance for the division from 1969-1971. He was also with the Amecom Division from 1971-1975 as director of product assurance.

### Ernest Lopez Named Vice President Of Finance

Ernest Lopez joined ATD in mid-September as vice president of finance. He is responsible for general accounting, financial planning, programs finance and integrated management systems (IMS). He was with Litton Data Systems for seventeen years, most recently as director of programs finance, a position he held for seven years. He also served DSD as manager of programs finance and as administrator of material cost. He brings a strong background in financial management and cost control to his new job with ATD.



## ATD News

### Navy Award Totals \$28.7 Million

Litton Applied Technology has been awarded a \$28.7 million U.S. Navy contract to implement the ECP-510 pre-planned product improvement for 117 AN/ALR-67 airborne countermeasures warning and control systems computers. The improvements will provide ATD's ALR-67 system with enhanced radar warning capability for the F-14, F/A-18, A-6 and AV-8B aircraft. An additional follow-on award for 113 computers is expected to follow.

### ATD Receives \$9 Million Contract From Loral

No sooner was the ink dry on the Navy ECP-510 contract than ATD was signing a \$9 million contract with Loral Systems Manufacturing Company for production of three line replaceable units (LRU's) of the ALR-56M advanced radar warning receiver. The contract calls for 90 shipsets of the DF receiver, C/D receiver and analysis processor components of the ALR-56M. Performance of the contract will take place over the next 30 months.

## Applied Technology Receives Additional \$9 Million Contract From Loral

ATD also received a \$9 million award from Loral Systems Manufacturing Company of Hauppauge, New York, for the production of the last two line replaceable units (LRUs) which make up the ALR-56M system.

The contract calls for 90 shipsets of the superhet controller (SHC) and the superhet receiver (SHR) components of the ALR-56M system. ATD received a contract in October for production of the

first three units, also worth \$9 million. Production of the last two units will begin immediately, with delivery starting in February.

"This is very good news for the company, and it reinforces ATD's role as a second source supplier for these units," said Bill Preever, program manager. "A great deal of thanks goes to all of the employees who worked with us during the past year to make these awards possible."

## HERE'S TO 1991!

We're all looking forward to a happy and prosperous New Year, and in an effort to keep you informed about Applied Technology, its successes and its future, "Image" will bring you a variety of features about the company each month.

"Image" will reflect the unique qualities of the company and its people. It will contain a balance of features that portray ATD people and their achievements, update you on new products and market developments, explain management's viewpoints on

different issues, summarize company and corporate news, and report on benefits, company activities and special events.

If you have story ideas or suggestions for the publication, let us know. We want to recognize the many achievements of various people and groups at Applied Technology, and it will require your help.

In the meantime, we hope you enjoy this first issue of "Image".



# IMAGE

February 1991

## Marines Commend The ALR-67

### In This Issue:

U.S. Marines Commend the ALR-67

Employees With Relatives in the Persian Gulf

Analyzing ATD's Benefit Changes

How We're Reducing Costs to Stay Competitive

Applied Technology Puts Its Best Foot Forward

Litton's Happy Hookers are a Stitch!

### Threat Warning Systems Meet The Test

Feedback on the performance of ATD's radar warning systems was received from U.S. Marine Squadrons operating in the Persian Gulf. Marine pilots reported that they were ecstatic over the performance of the ALR-67 radar warning systems installed in the AV-8B and F/A-18 aircraft.

Put to their first combat tests in some time, ATD's radar warning systems are more than making the grade, according to both the Navy and the Air Force. They're performing as advertised.

The majority of the aircraft involved in the "Desert Storm"

conflict, whether operating from land or sea are equipped with Litton Applied Technology RWRs.

Litton ATD systems are installed on the following aircraft: B-52, RF-4C and MC/AC-130 (ALR-46); F-16, A-10 and MC/AC-130 (ALR-69); F/A-18, A-6, F-14 and AV-8B (ALR-67); A-6, F-14 and A-4 (ALR-45).

Coalition forces employing ATD equipment include Kuwait (ALR-45) and Canada which has sent CF-18's to the Persian Gulf to protect Canadian interests. The ALR-67 system is on the CF-18.

ATD field personnel were directly involved in readying many of the above aircraft for deployment in the Persian Gulf.

Since 1965, when Applied Technology developed the

APR-25, credited with saving countless lives during the Viet Nam conflict, ATD has been the world's leading producer of airborne radar warning systems. More than 20,000 ATD systems have been installed in U.S. and foreign military aircraft.

Applied Technology's defense electronic systems and components protect military aircraft and their crews by providing audio and visual warnings of impending threats such as launched missiles and anti-aircraft fire. ATD's products also enable aircrews to outmaneuver enemy weapons systems by taking split-second evasive action and/or by confusing the opposing radar with electronic jamming techniques, or the employment of expendable countermeasures.

## Litton ATD Product Evolution

**APPLIED TECHNOLOGY RWR SYSTEMS HAVE EVOLVED IN RESPONSE TO THE DYNAMIC THREAT ENVIRONMENT**

### THREAT SYSTEM CAPABILITIES

Command/Control Networks, look-Down-Shoot-Down, Low ERP  
2nd Generation LPI

High Pulse Density, Pulse Doppler, ETWS  
1st Generation LPI

Increased Threat Sophistication: Stagger, Jitter, CW, TWS

IOC Modern Radar-Guided Weapons

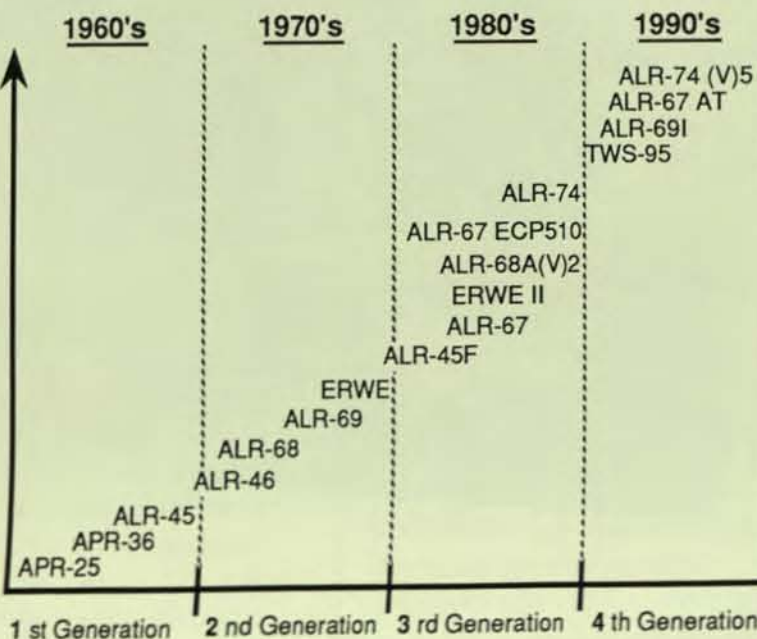
### NEW USER REQUIREMENTS

Recording, Sensor Fusion, Increased Throughput/Sensitivity

Avionics Interface, Reprogrammability, Increased Throughput/Sensitivity

Software Control

Tactical Warning Only



Here's a look at how ATD's radar warning systems have evolved in response to the dynamic threat environment.





## Quality Counts

*Carl Ludwig, vice president of quality/operations, stresses the importance of quality in manufacturing and in all areas of the company.*

## ATD Image

published for employees of Litton Applied Technology

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95150-7012

February 1991

ATD Image is published monthly for the employees of Litton Applied Technology.

Editor: Susan Scharf and Judy Horst

Photographer: Dave Johnson

Production: Deborah Jensen and Joyce Byers

*The art of Alan Monthei, graphic arts services, captures the spirit of Litton ATD systems performing day and night in the Gulf.*

# We Delivered:

## Carl Ludwig Comments On ATD Quality The Persian Gulf Forces Counted On

When the Coalition forces launched Operation Desert Storm against Iraq so swiftly and decisively, it was with the assurance that the technology available to them would deliver all the capability they counted on. It did, and the word "quality" took on a very real meaning.

Why? Because quality was built into the coalition's arsenal of weapons and defense systems. In war there is no room for a misfire or equipment that doesn't work. There's no time for failure analysis. Everything must work and work perfectly.

That's why "total quality" and "quality improvement" are no longer buzzwords of the 80's; they've become the realities of the 90's. And it was never so evident as it is in Operation Desert Storm.

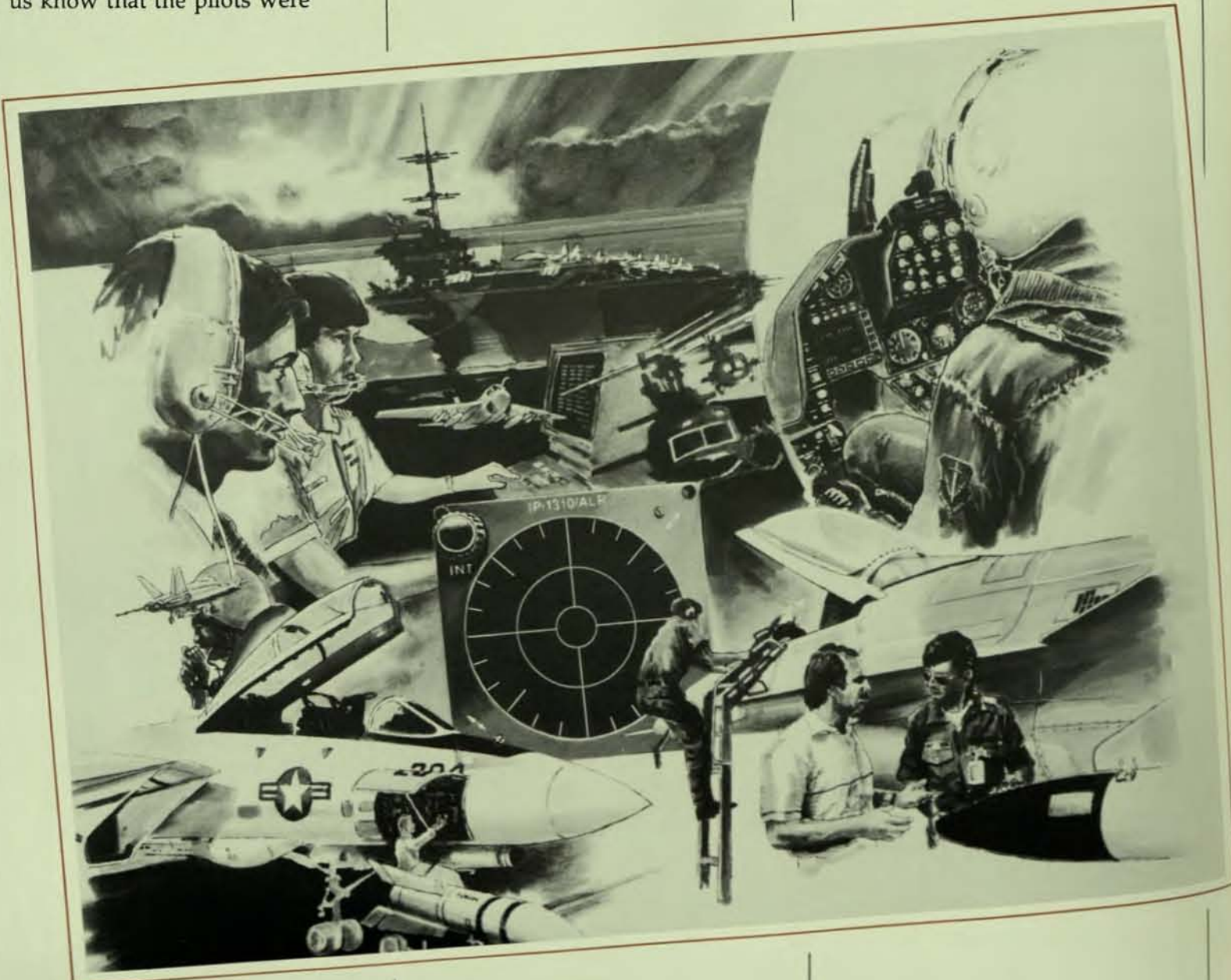
We can all share in the satisfaction that ATD's systems performed "as advertised". The Navy, Marines and Air Force let us know that the pilots were

ecstatic with our equipment. These compliments remind us that lives depend on what we do.

That's what makes total quality so important. Quality is also important even in non life-threatening situations, in your everyday dealings with those who depend on your work to do their work. Quality is quite simply doing things right the first time, whether you're in manufacturing, purchasing, accounting, shipping or engineering.

In short, what you do when you pursue quality is quality improvement. What you get is higher profits, customer satisfaction, improved communications, higher morale, lower costs, and reliable products—all good reasons for quality to be something each of us thinks about every day.

*"Total Quality" and "Quality Improvement" are no longer buzzwords of the 80's. They've become the realities of the '90's. And it was never so evident as it is in Operation Desert Storm.*







## The Reality Of Operation Desert Storm

by Clayton Williams  
President ATD

Reports received from our forces in the Persian Gulf indicate that Litton ATD's radar warning equipment, installed on most U.S. tactical aircraft flying combat missions, is performing well, just as we knew it would. We can now state that our radar warning equipment is combat-proven as a result of Operation Desert Storm.

Although we don't see an immediate impact on our business forecast due to Operation Desert Storm, what the military services learn from our equipment performance will enable us to improve our current systems. These changes could be to correct identified discrepancies or to make operational/logistics improvements.

The reality of war, however, is that its greatest impact is on people—our sons and daughters, husbands and wives, mothers and fathers. Lives will be temporarily disrupted by the war. Perhaps the work we do here at ATD may, in some way, bring the war to a swifter conclusion, and reunite our families. We hope so.

We are proud of the contribution our technology and equipment are making toward the survivability and success of combat missions being flown in support of Coalition efforts. The credit for our equipment success clearly belongs to the men and women of Litton Applied Technology, whose untiring efforts have resulted in the fielding of reliable, effective systems which continue to save many lives.

## Applied Technology Puts Its Best Foot Forward

Litton ATD will be appearing at three important trade shows in March. The Dixie CROW trade show at Warner-Robbins Air Logistics Center at Robbins Air Force Base in Georgia will be held March 18-22. ATD will be touting its production capability, commitment to total quality and its recent Blue Ribbon Contractors Award as it promotes ATD's products and capabilities. A product brochure detailing the main elements of an ALR-69 improvement program will also be distributed.

March 20-23 is the Defense Asia show in Singapore. Emphasis will be on products targeted for Asia and the Pacific Rim. Themes of the Litton ATD display will be: "Combat proven threat warning systems; 30 years of experience with 20,000 delivered systems"; and "How ATD systems have evolved in response to the dynamic threat environment." A mock-up of Litton's most advanced RWR for

the international market will be displayed along with technical details of an ALR-46/69 upgrade and Litton's Shipborne Integrated Electronic Warfare System (SINEWS).

Washington, D.C. is the site for the Navy League show scheduled for March 26-28. ATD will showcase the ALR-67 and technology improvements to enhance its performance. A derivative of the ALR-67 for shipboard threat warning will also be presented at this show.

"While the shows are there for us to promote our products and capabilities, they also provide access to the customer community and a chance to broaden our customer base as well as increase customer awareness of ATD, its products and technologies," said Chuck Sloan, acting director of strategic planning/marketing services for Business Development.

## Desert Notes

### Brotherly Love

When you meet Vera Gonzalez coming down the hall, the first thing you notice is the yellow ribbon she has attached to her employee badge. An administrative clerk in hybrid test, she has a brother in the Gulf.

"Al's been there since the crisis began," said Vera. "He's a petty officer second class on the U.S.S. Ogden and was immediately deployed from Hong Kong to the gulf region. He's part of the Navy's support efforts as a member of an amphibious assault team."

For Vera, her parents and sisters, this is a tense time. The family is very close, but the Gulf Crisis has brought them even closer. "Al writes at least once a month to each of us, but he really can't say much about what's going on there."

For us, the waiting and wondering is tough, and we try not to watch too much TV. We rent videos and try to take our minds off of what's going on over there. We all believe that our country is doing the right thing, and we support the President in every way. I don't understand the protests; I wish they would put their energies into prayers for peace. We want peace just as quickly as they do; maybe even sooner."

### A Family Affair

Ruth Richard hopes the war will be over soon so her brother Robert can come home safely and her daughter Felicia, age 18 and a reservist just finishing high school, will be able to go off to college and not off to war. "She wants to go if called up, and I'll be behind her if she has to go," said Ruth, "but we all hope for peace."

Ruth is a micro assembly specialist in component assembly for ATD. Her brother Robert, a medic in the Louisiana Army National Guard, was called up January 7th. The oldest of seven children, he also served in Viet Nam. "I'm concerned for him, because I don't want him to relive that war experience. He has always had a very positive attitude, and we're a very religious family which also helps. We're sending him letters and packages from home to keep his spirits up, too" she added.

Right now, Ruth's working on a package for Robert, and several employees volunteered to add gifts. "No one likes war, and no one wants war, but we're there and I'm behind all the men and women who have very unselfishly left their families and homes to see this conflict through," she said. "Some of

(continued on page 8)



Vera Gonzalez wears a yellow ribbon for her brother Al and all the other men and women serving in the Gulf.



Ruth Richard hopes the war will be over soon so that her brother Robert can come home safely and so that her daughter Felicia, a reservist, will be able to go off to college and not off to war.



# Reducing The Cost of Doing Business Is Critical To Our Success

"Applied Technology's overall benefit program continues to be competitive with companies in the San Francisco Bay Area, even with recent revisions made to it. Changes made to our benefits package were designed to reduce costs while at the same time continuing to provide employees with competitive benefits to meet their personal needs. It is now very important that we reduce costs throughout the company, so that we can compete strongly in the 90's."

Clayton Williams,  
president ATD

Looking at sales forecasts well into the '90's, Applied Technology's executive staff set in motion several plans to reduce costs—all of these were covered in the employee meeting held last November, but it's important that we not lose sight of the cost cutting goals set forth at that time and what's happened since then.

- 1. Relocation of the Sunnyvale facility to San Jose.** This is on target with the move expected to be completed by the end of February.
- 2. The addition of new tenants to share space at Hellyer.** Litton Computer Services moved into the Hellyer facility last fall.
- 3. Reductions in capital equipment, asset base and spending.** Capital equipment that the company acquires is generally depreciated over time.

This depreciation is a cost that appears on the profit and loss statement of the division; so a real effort has been made to reduce that cost by reducing our asset base, getting rid of those assets we no longer use. Elimination of unwanted assets will enable us to invest in the newest equipment needed to design and produce the best systems possible without increasing our overall asset base.

- 4. Reduction in the cost of Fringe Benefits.** ATD has reduced the costs of its fringe benefits by about 7%. Fringe benefits are what the company pays for your holiday, vacation, sick leave, medical, retirement, dental, vision, stock plan, social security, disability, unemployment insurance, workers compensation and other benefits each year. Current estimates for the year are that for every dollar you earn, the company spends an additional

43 cents for your benefits. ATD has taken steps with its new benefits package to reduce benefit costs while at the same time maintaining an overall program which is still above the average for companies in the Bay Area.

- 5. The division has further reduced overhead costs** like travel, operating supplies, maintenance and repair, computer usage and storage costs and facility related expenses.

While cost cutting is never easy, it's very essential, particularly now. Growing pressures on defense budgets and uncertain economic times have created an increasingly competitive and challenging economic environment for ATD's business. To survive, ATD needs to develop new markets, invest selectively in new technology and reduce costs wherever possible.

## The Move Is On

People and equipment have moved into Hellyer at a rapid rate as Building 8 completes its move to the San Jose facility. The move's scheduled to be completed this month. So, welcome aboard, everyone.

- 1. Mary Gray, production assembly,** knows she'll find everything one day.
- 2. Dennis Rosarrio, maintenance mechanic,** unpacks and sets up work stations.
- 3. Diane Thomas and Dick Nelson** are glad the move's nearly over.
- 4. Winnie Lo Vine, first article,** didn't miss a beat.



1.



2.



3.



4.



It's a bird, it's a plane, it's moving day!



# Analyzing ATD's Changes in Benefits

In December, Applied Technology Division employees attended two-hour meetings in which a variety of benefit changes were discussed. A video overview was presented, and changes in medical, dental, sick leave, vision, tuition reimbursement and retirement plans were explained in brochures and other handouts. Rick Giovanetti, director of human resources; Betsy Steele, manager of compensation/benefits; and Bob Thurston, Litton pension plan administrator; were at each meeting to answer questions.

In January a new software program was available to help employees make decisions regarding participation in the new Litton Financial Security and Savings Program (FSSP). What follows is a look at some of ATD's key benefit changes which became effective February 1, 1991.

## 1. The Use Of Pre-Tax Dollars For Payment Of Medical Contributions Through A Section 125 Plan

Previously, your payroll deduction contributions toward your Applied Technology Medical Plans were paid with after-tax dollars. Now, payment of Medical premiums will be made with pre-tax dollars. Your medical premium will be deducted from your gross income, and then your income will be taxed. You receive a significant Federal and State tax savings.

## 2. Medical Insurance

Your share of the cost of this benefit will be 7.5% for an employee, 10% for an employee with one dependent, and 12.5% for an employee with two or more dependents. Still, Litton Applied Technology pays 92.5% of the cost for medical insurance on the employee only, 90% of the cost for an employee plus one dependent, and 87.5% of the cost for you and your family.

## 3. Delta Dental Plan Changes

There is now a \$25 annual deductible per person and \$75 per family.

Diagnostic and preventative care will be covered at 80% of Delta Dental's usual, customary and reasonable (UCR) expenses. The annual deductible does not apply to diagnostic and preventative care.

Basic services, such as fillings, crowns and cast restorations, are

covered at 80% of UCR expenses after you meet the annual deductible.

Prosthodontics will continue to be covered at 50% of UCR expenses after you meet the annual deductible.

## 4. Vision Service

ATD's vision service benefit is now available only to employees with plan provisions remaining the same as under the current plan; however, there is no dependent coverage.

## 5. Sick Leave Plan

You now accrue 4 hours per month into a short-term bank up to a maximum of 80 hours, and you accrue 4 hours into a long-term account, up to a maximum of 960 hours. Sick leave hours in your short-term account can be used for short-term illness (less than 8 consecutive days), and sick leave hours in your long-term account are used for long-term illness (8 or more consecutive days or the first day of hospitalization).

Once you accrue 80 hours in your short-term account, the full 8 hours per month will accumulate in your long-term account.

As of February 1, the first 80 hours of your accumulated sick leave was placed in your new short-term sick leave account. All additional hours were placed in your new long-term sick leave account.

## 6. Tuition Reimbursement

You can now receive reimbursement for up to 100% of tuition costs for approved courses regardless of whether you attend a private or public college. Maximum reimbursement payable is \$3,000 per year.

## 7. New Litton Financial Security And Savings Plan

The Itek Retirement Plan was frozen as of January 31, 1991, and the Financial Security and Savings Program (FSSP) became effective February 1, 1991.

**FSSP Benefits:** You can save money and pay less current taxes at the same time. All deposits are made on a pretax basis through payroll deductions. The maximum amount you may deposit to FSSP is the lesser of 18% of your pay or the annual maximum dollar amount allowed by the government, which is \$8,475 in 1991.

	Without FSSP	With FSSP
Annual income	\$ 50,000	\$ 50,000
Part I deposits (4%)	- 0	- 2,000
Taxable income	\$ 50,000	\$ 48,000
Estimated federal income tax	\$ - 5,960	\$ - 5,400
Estimated state income tax	- 1,554	- 1,386
After-tax savings	- 2,000	- 0
Net pay	\$ 40,486	\$ 41,214
Tax savings:		\$ 728

## Three FSSP Accounts Available For Investment Of Your Funds

You may elect to deposit the following amounts into three FSSP accounts, but you must deposit the maximum amount (4%) into Part I before depositing funds into Part II (4%) and the maximum amount into Part II before depositing funds into Part III. You may deposit a maximum of 10% into Part III.

2-4% of pay to Part I: These funds are invested in the Retirement Fund, with the objective to preserve capital and produce reasonable levels of growth in principal and current income. Your deposits to this account will always earn a cumulative return of at least 5% a year.

1-4% of pay to Part II and 1-10% of pay to Part III: Here, you choose from four investment funds, a fixed income fund, money market fund, bond fund or equity fund. You direct your deposits to any or all of these investment funds in multiples of 10%. The Company match will be invested in the same fund or combination of funds as your Part II deposits.

## The Company Match

When you make deposits into the Part II account, Applied Technology will provide a 50% match. For every dollar you deposit, the company will deposit an additional 50 cents to your account.

You earn a permanent right to the Company match over a period of seven years, becoming fully vested (eligible to receive 100% of the company contribution to your Part II deposits) after 7 years. Of course, you are always fully vested in the deposits you make to FSSP.

*Many details about your benefits are not covered in this article; only highlights of the benefits changes made effective February 1, 1991. Information in the legal plan document supersedes anything written here. Should you have further questions, contact ATD's plan administrator, Betsy Steele.*

## Example of Pretax Savings:

*For married employee with two children, an annual income of \$50,000, saving 4% of pay in Part I.*

## Computers Help You Analyze Litton FSSP

Personal computers loaded with the retirement planner software are still available for your use through February in the compensation/benefits department, located in Building 2 at Hellyer. Employees have found it very easy to operate. Above all, it will help you make an informed decision regarding your participation in the new Litton FSSP.



## Litton News Roundup

### Litton: A Brief Profile

Litton, founded in 1953, is a multi-billion dollar, high technology corporation. It provides advanced electronic and defense systems, resource exploration services and industrial automation systems to U.S. and world markets.

The company, headquartered in Beverly Hills, employs approximately 51,000 people at more than 40 divisions around the world. Operations are primarily located in the U.S., Western Europe and Canada.

In 1983, Applied Technology became part of Litton, and today it is part of the Advanced Electronic Systems Group. Other groups in the corporation include Resource Exploration Services, Industrial Automation Systems and Marine Engineering and Production.



David Danjczek promoted to staff vice president for international business.



John R. Russell elected president, CEO of Litton's Western Atlas Oil Service, also named senior vice president of Litton Industries.



John J. Stirk elected vice president of Litton Industries, named to head Washington, D.C., office.

*We hope that news reported here from the other divisions of Litton will help you gain better understanding of Litton and its various groups and divisions.*

### Litton's Ingalls Shipbuilding

The 13th ship in a series of Aegis guided missile cruisers being built for the U.S. Navy by Litton Ingalls Shipbuilding division was commissioned into active service January 12. The 567-foot, 9,500-ton ship USS Chosin is assigned to the Pacific Fleet and will make Pearl Harbor, Hawaii, its home port.

The division won a \$28.7 million U.S. Navy contract for the regular overhaul of the Spruance-class multimission destroyer U.S.S. Peterson (DD969). The 13-month overhaul is to begin in March.

The U.S. Navy also awarded Ingalls a \$500.9 million contract to build two more Arleigh Burke (DDG-51) class Aegis guided missile destroyers. Ingalls is currently under contract to build six other Aegis destroyers. The first two ships of the class, Barry (DDG-52) and Stout (DDG-55) are in production. Delivery dates for all of the ships extend into the mid-1990's.

### Litton Systems Canada Limited

Litton Systems Canada Limited was awarded a multimillion dollar contract by Bristol Aerospace Limited to provide 54 LN-93 standard ring laser inertial navigation systems for the CF-5 avionics update program. CF-5 aircraft are used as trainers before pilots progress to the CF-18.

### Litton's LITEF GmbH Division

Litton's LITEF GmbH division in Freiburg, Germany, has been awarded four major avionics equipment contracts for the European Fighter Aircraft (EFA). The division is to develop the inertial measurement unit (IMU), the interface processor unit (IPU) and two avionic computers. LITEF will also be a subcontractor in the EFA program for the electronic seat sequencer and the communication audio management unit with the corresponding prime contractors Martin-Baker and Computing Devices of the United Kingdom.

### Litton's Guidance & Control Systems

Litton's Guidance & Control Systems division received a \$12.3 million addition to a previously awarded U.S. Air Force contract to produce ring laser gyro inertial

navigation systems for F-15 and F-16 tactical aircraft. The latest application of the LN-93 is for the F-16. The funds provide for 127 additional Litton LN-93 and LN-94 standard ring laser initial navigation systems, spares and data for F-16 and F-15 aircraft, respectively. The systems will be used aboard new aircraft as well as to retrofit existing ones.

### Litton's Material Handling Division

A \$17 million contract has been awarded to Litton's Material Handling division by General Motor's Vauxhall Motors of England subsidiary to provide an automated material handling and control system for the company's newly expanded 1.3 million square foot parts distribution warehouse in Luton, England. The Litton division will design, install and integrate the system to automate the movement, storage, management and control of Vauxhall spare parts received by truck in bulk quantities.

### Litton's Special Devices

Litton's Special Devices division delivered its 4,000th Emergency Rescue Beacon to its exclusive sales distributor, Koden International. The emergency position indicating radio beacon helps rescuers locate maritime ships, pleasure craft, fishing vessels or other craft that are in distress.

### Litton's Aero Products

Litton's Aero Products division received a multimillion dollar award from the U.S. Customs Service for 50 LTN-92 laser gyro inertial navigation systems. The systems, to be installed in various Customs Service aircraft, will provide highly accurate and reliable navigation in support of U.S. drug enforcement programs. The navigation systems are the same units used by many domestic and foreign international air transport carriers.

America West selected Litton Aero Products' ring laser inertial navigation system (RLG-INS) for its fleet of four Boeing 747-200 aircraft. A highly reliable, all-weather system, it is designed for growth into global positioning system reception and has provisions for a worldwide navigational data base. Delivery of the system starts immediately.

### Litton's Material Handling Division

American Airlines has awarded Litton's Material Handling division a major contract to provide a material handling and control system at the airline's new 200,000 square-foot maintenance base in Fort Worth.

The Litton division will design, produce and integrate a computerized dock-to-dock system for storage and tracking of all parts used in major aircraft maintenance. It is to be installed by August of this year.

## Corporate Appointments

### Litton Promotes Danjczek To Staff Vice President For International Business

David W. Danjczek has been promoted to the new Litton corporate post of staff vice president for international business. Danjczek, 39, will maintain his office in Washington, D.C., where he had been director of international operations for Litton's Advanced Electronics Systems Group since 1978. He joined Litton in 1974.

In his new post, Danjczek will be involved with all of Litton's businesses, helping establish and support relationships in existing and prospective international markets. He will also continue to be responsible for liaison with the U.S. government for Litton's imports and exports.

### Russell Elected President, CEO Of Litton's Western Atlas Oil Service And Senior V.P. Of Litton

John R. Russell has been elected president and chief executive officer of Litton's Houston-based Western Atlas International high technology oil services subsidiary. He was also elected senior vice president of Litton Industries.

Russell has served as vice president and chief operating officer of Western Atlas since last May. Before that, he was the division's senior vice president and chief financial officer for three years following the establishment of Western Atlas in 1987. He joined Litton Western Geophysical division in 1969 and was its controller and division vice president.

### Litton Elects Stirk Vice President, Named To Head Washington, D.C. Office

John J. Stirk has been elected vice president of Litton Industries and appointed to head the company's Washington D.C. office. In his new post, he will serve as Litton's chief representative in day-to-day relationships with all branches of federal government.

Stirk, 59, had been staff vice president, congressional relations, with General Dynamics Corporation in Washington for the past four years, having joined



General Dynamics in 1980 as corporate government relations counsel. He later took on additional responsibilities as director of legislative affairs in 1984.

## ATD Profiles

### Tom Jacobs Oversees Advanced Systems Engineering

Tom Jacobs was named director of advanced systems engineering, bringing almost 20 years of in-depth experience in advanced systems development and management to his new post with ATD. He worked on the Patriot and AMRAAM missiles at Raytheon MSD and most recently on electronic warfare and dual mode missile systems at Ford Aerospace in Newport Beach where he served as program manager for advanced systems.

Jacobs earned his BSEE degree at Massachusetts Institute of Technology, a math degree at Saint Vincent College in Latrobe, Pennsylvania, and has done post-graduate work at Northwestern University.

When not working, Tom enjoys sailing and water sports. He sailed around the American and British Virgin Islands in 1985 and had an exciting trip to Tahiti, Bora Bora and Raihatai in 1988.

### Heidi Shyu Brings Talent And Experience To ATD

Heidi Shyu, who joined ATD in August as a senior staff engineer, served as acting manager of advanced concepts from mid-September until January of this year. Before joining ATD, she worked for a year at Grumman Aerospace as the project engineer for the Joint STARS Self Defense Suite Program, a study to evaluate candidate off-the-shelf EW equipment to enhance the survivability of the Joint STARS aircraft.

She was also a scientist and project engineer with Hughes Aircraft for 11 years. Her work at Hughes centered on technical management and design of electronic counter countermeasures for the APG-63, APG-70, and APG-65 radar systems. She also worked on the design of search, acquisition and track radar modes for the F-14 and F-15. While with Hughes, she also received four consecutive superior performance awards from the Hughes aircraft radar systems group each year from 1986-1989.

Heidi graduated from the University of New Brunswick,

New Brunswick, Canada, with a degree in math. She earned a masters degree in math from the University of Toronto and a second masters in Electrical Engineering from U.C.L.A., where she majored in control theory. Her most recent postgraduate work was in control theory, with minors in communication theory and applied math, at U.C.L.A.

### William Webster Heads Systems And Software Engineering

William Webster, new director of software engineering for Applied Technology, previously served as director of software engineering for TCI, Inc., of Fremont, California. He has almost 20 years experience in computer related businesses, including over ten years running a real-time systems development company he founded in the Washington, D.C., area.

Bill has managed engineering groups producing satellite data acquisition systems, tactical/strategic communications intercept systems, voice processing systems and fusion database management systems. He also served as a Lieutenant, USN, in the Office of the Secretary of the Navy.

Bill earned his BSEE and MSEE degrees at Cornell University. He has a passion for systems/software design-before-building, downhill skiing, and modern architecture--applying a "zero-defects" approach to all three.

### Lee Heesacker Is One of ATD's Top Guns For Advanced Programs

Lee Heesacker brings a strong systems engineering capability, excellent breadth and depth in all aspects of EW systems, demonstrated management ability and strong teaching and presentation skills to his new job at ATD as advanced programs manager. He was originally with GTE Sylvania in Mountain View, California, until 1968 when he joined Dalmo Victor in Belmont, California. There he served as manager of advanced EW systems and director of marketing.

Lee joined Cubic Electronic Systems, San Diego, in 1978 and was engineering department manager, directing many projects, including a proposal for a \$30 million operational flight trainer to simulate all flight crew activities in the EF-111 aircraft. He rejoined Dalmo Victor in 1983 as engineering program manager for a \$15 million U.S. Navy development of an advanced

electronic buoy decoy system. Lee also managed technical proposals and marketing for many international airborne, shipboard and mobile systems. He was most recently engineering program manager for the development of the largest ever DV/EM systems surveillance product, a \$20 million submarine ESM program for a NATO customer.

Lee's hobby is desktop publishing, and he puts it to good use helping his wife, Sue, who is a real estate broker in Los Altos and director of the Los Altos Board of Realtors. They have one son, Steve, who will complete his masters in Physics, specializing in electro-optics.

### Charlie Savage Heads Process Development

Charlie Savage joined ATD as manager of processor development. Effective at planning and controlling hardware and software development efforts, he's also adept at performing hardware/software tradeoffs. He has a solid management background related to short- and long-term technology planning and follow-through.

Charlie comes to Litton from GTE Government Systems of Mountain View where he was manager of the digital engineering laboratory. He was responsible for all digital hardware and software engineering efforts for the Tactical Electronics Defense Division (TEDD). In his 14 years with GTE, he also served as manager of the microelectronics engineering department, responsible for all digital hardware design and test for TEDD, and prior to that he managed the microelectronic systems section, an organization he formed and led.

He earned a MSEE at Northeastern University in Boston, having completed his BSEE at Columbia University in New York. An avid bicyclist and married with two children, Charlie serves as president of the American Lung Association of Santa Clara and San Benito Counties and is a member of the board of directors of the American Lung Association of California.

## Profiles

Here's a look at some of ATD's employees who've joined the company in the last six months.



Tom Jacobs



Heidi Shyu



William Webster



Lee Heesacker



Charlie Savage



## Litton's Happy Hookers Are A Stitch!

ATD's ace photographer Dave Johnson discovered the following new in-group at Hellyer and filed the following report.

Litton Ladies Crochet Club members proudly display the progress they've made in just two short weeks. Standing are Lynn Tirums, Terry Heath, Avis Olague, Arlene Davis, Sharon McClune (LCS), Chris Rehmeyer and Camille Zaferes. Seated are Chloe Brasuell, Val Hopkirk, Tanci Valadez, Stephanie Mason (LCS) and Jan Messner.

Under the tutelage of ATD employees Camille Zaferes, business development, and Christine Rehmeyer, programs, people from ATD and LCS are rushing to join noontime's hottest activity, the Litton Ladies Crochet Club (men are welcome, and they will change the name of the club). Just barely a month old, the club boasts more than 20 members, and is open to all who want to crochet or learn to crochet.

"Our theory is that you can learn to crochet quickly by practicing one basic stitch. That stitch, multiplied many times over, can quickly take the shape of an afghan. We can teach you how to add other stitches, like a shell stitch to finish the edges, but we're really doing this because we enjoy what we're doing," said Camille.

Some find the hobby a means of stress reduction, and at least one

member, Chloe Brasuell of financial planning, claims it has helped her kick the smoking habit.

Sue Smith, business development, admits it's easy to become "hooked" on the hobby; she even thinks it may be an undiscovered diet plan. "There's no way to shove food in your mouth while crocheting," she demonstrated.

No matter what the reason, crocheting is the "in" noontime sport at ATD; so call Camille on extension #4091 or Christine at #4736 to join the C-team. Or, look for the glare of flashing hooks in the cafeteria at noontime, wander over and try it out.

"It's fun, inexpensive and a source of beautiful gifts. Best of all it brings people together," Chris added.



Chloe Brasuell, foreground, claims her new lunchtime hobby has helped her kick the smoking habit.



(continued from page 3)  
them may not have families, and they need mail from home, too.

Where to write and what to send is published in the newspaper every day; so I hope people will continue to write them to show that we're behind them 100%."

Let us know if you have family members in the Gulf. Contact IMAGE at #4257 or M/S 222.



# IMAGE

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## One By One Those Contracts Add Up!

### ATD Receives \$9.8 Million Contract

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*ATD's Gift To General Norman Schwarzkopf*

Naval Air Systems Command has awarded Applied Technology a \$9.8 million contract to produce upgrade kits for the ALR-67 Countermeasures Warning and Control System. This award resulted from a competitive evaluation by the U.S. Navy and involves seven different

engineering change proposals previously developed by ATD.

Work will begin immediately with the first deliveries in May. The upgrade kits will be shipped to the Navy for retrofit installation into the ALR-67 systems that were previously delivered.

Over five-thousand kits are to be produced which range in complexity from simple resistor components to complete replacement circuit card assemblies.

## Dr. Farhang Sabet-Peyman Wins Litton Advanced Technology Achievement Award



Dr. Farhang Sabet-Peyman, ATD staff engineer, has been named a winner of one of the Litton Advanced Technology Achievement Awards. This prestigious honor is given to the Corporation's technology innovators—those who have distinguished themselves in the workplace by creatively transforming unique ideas into valuable products and services.

He and other honorees will be recognized at an awards dinner on May 1 at the Litton annual Corporate Advanced Engineering Symposium being held in Charlotte, North Carolina.

Dr. Sabet-Peyman was chosen to receive the Litton award for his work in Bulk Acoustic Wave technology. As a direct result of his work, ATD has pioneered the application of BAW devices to high speed processing of radar data, required for the real time sorting and classification of electronic signals in dense EW environments.

His work has led to the demonstration of two major applications of BAW technology; RF channelization and precision direction finding, both of which are vital elements of future Radar Warning Receiver (RWR) and Electronic Support Measures (ESM) systems.

Dr. Sabet-Peyman has extensive experience in the analysis and design of optical and acoustical components and systems. Areas of his expertise span optical signal processing, lens design, digital signal processing, fiber optics, and detectors. He has lead ATD's BAW technology effort since 1985, and has received four patents with other pending.

Dr. Sabet-Peyman has a masters degree in electrical engineering from the University of Pennsylvania and masters and Ph.D. degrees in optical sciences from the University of Arizona.

(continued on page 8)

*A discussion of BAW technology and its impact on new products and enhancements to existing and future ATD systems is on page five of this issue of "Image."*



# Engineering ATD's Future

*Bob Hess was named vice president of engineering in early March. Here are his views of the company's engineering priorities, and a brief review of six emerging technologies being developed by the people of engineering.*

## ATD Image

published monthly for the employees of Litton Applied Technology

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*By providing an extraordinary increase in our computing power, we'll be able to broaden the range of tasks our RWR systems perform.*

*-Charlie Savage*

*While Charlie Savage, manager of processor development, heads up work done on ATD's common processor technology, key contributors to the project include Wil Salazar and John Shannon. They've also received vital assistance from Bill Silva, advanced systems.*

Engineering is challenged to develop new products that will push the leading edge of technologies for both airborne RWRs and aerospace opportunities, develop components to upgrade existing systems, and develop new subsystems for international markets.

We are developing high gain amplifiers and faster processing designs under ECP-510 and ECP-511 programs as part of ALR-67 upgrades. Both narrowband and wideband superheterodyne receivers are being developed for the Sandman and DASI (defensive aids system improvements) programs.

Paralleling these contractual efforts, engineering is also developing increased sensitivity receiver components and a new high performance superheterodyne receiver module. Additionally, we are developing a 32-BIT, Reduced Instruction Set Computer (RISC) processor to provide increased processing speed with greater capacity and modularity. It will replace the current inventory of RWR and aerospace family of processors.

## ATD's Search For The Common Processor

The processor in Applied Technology's Radar Warning Systems (RWRs) contains the main computer that provides the "brains" for the RWR system. Currently, the Applied Technology Computer (ATAC) controls and receives signal data from RF equipment and processes the information sending it on to the cockpit display equipment. ATAC, originally developed in 1976 and extensively modified since then for ATD's newer systems, is being upgraded.

We are working on the development of a common processor that will provide hardware with sufficient capability that it could be used in a number of different RWR systems for the next several years. This is important because it provides a major increase over present computing capabilities, and it will enable ATD's systems to perform completely new functions.

We're currently analyzing the computing power required for a common processor and

ATD's engineering organization is in an enviable position compared to other defense firms which are struggling for survival in today's climate of reduced defense spending. Our multimillion dollar, five year strategic plan thrusts the engineering organization into the nucleus of ATD's technologically aggressive program.

Our system/component upgrade projects are uniquely positioned to support a large installed base of RWR equipment throughout the world, more than 20,000 systems. We are prepared to support our customers needs to extend the life of previously deployed equipment.

Current political and economic events have created a market situation favoring the upgrading of existing platforms and systems in lieu of purchasing newer, more expensive systems. Independent research and development (IR&D) and investment monies have been directed to take advantage of these market opportunities. Now it's our job to develop the technologies that form the basis of the division's strategic plan.

New technologies are also being developed on the High Probability of Intercept (HPI) award recently received from ST Research. We're developing a new Random Agile Deinter-leaver chip for the high probability intercept receiver. In conjunction with all these hardware developments is a major development effort in software systems design and signal processing.

Nearly a million dollars of company development funds support special emitter identification (SEI) data base development, mission modeling and SEI scoring software developments. In conjunction with the SEI development, an advanced intrapulse processor (AIP) is being developed to handle special emitters. Lastly, several of our engineers are dabbling in the commercial market place, exploiting ATD's optical technologies.

Looking further into the future, the engineering systems group is addressing the infusion of all of ATD's technology into space applications such as satellite warning systems and satellite collection systems.

Engineering technologists are in place and we are aggressively accepting the challenges of the strategic plan. Successful execution of the above tasks could result in an excess of \$200 million in bookings by 1994. Our plans have received adequate funding and facilities, all that remains is for us to "PERFORM."

This project is vital to life extension programs for deployed RWRs and is planned for new system introductions. By providing an extraordinary increase in our computing power, we'll be able to broaden the range of tasks our RWR systems perform. In keeping with the ATAC tradition, we are confident that ATD's common processor will find wide customer acceptance well into the next decade.





## PRT Chip Development

Seven Application Specific Integrated Circuit (ASIC) chips are used in every major new RWR system; three are analog devices, conceived by ATD engineers and designed outside. Three are digital devices and were designed and developed by ATD. The seventh is an analog/digital interface device conceived and designed on the outside. All seven are part of a major new development effort to create a standard front-end parameter (or pulse) converter unit (PCU) for all of ATD's radar warning systems.

Some time ago, ATD replaced the hardware logic of the older systems with more sophisticated software. With so many pulses impinging upon modern radar warning systems these days, there's now a need to filter out and eliminate redundant or unusable data. The PRT filter chip provides the necessary filtering.

The last of the three chips to be developed in house is the Pulse Repetition Time (PRT) filter chip which can eliminate unneeded signals. For instance, radar is transmitted by thousands of objects—hostile aircraft, friendly aircraft, ships at sea or missiles, and the RWR detects all of these with the ability to distinguish

friendly from hostile by the spacing or frequency of the pulses. But, to speed up processing and response time, the PRT filter eliminates excess or repetitive pulses. It works in concert with the software to help it process information more rapidly.

Work to develop all parts of the PCU began in 1988, and ATD has been working on the PRT chip design since January 1990.

Current testing on the chip and the PCU indicates both will live up to expectations. In fact, the PCU will go into production this year on the ALR-67 ECP-510 and is slated for use in the Sandman and Digital Aids System Improvements (DASI) and other programs for years to come.

On the horizon is the common processor, of which the PCU, including the PRT chip, is an integral part.



*Buck Eng and Cliff Grodeon, both of processor development engineering, and Bill Silva, advanced systems, can take credit for the development of the PRT chip.*

*ATD has been working on PRT chip design since January 1990, and current testing on the chip looks like it will live up to all expectations.*

*—Bill Silva*

## ET CVAD's Impact On ATD's Future

Enhanced Throughput, Compression Video Amplifier Detector (ET CVAD) replaces existing CVAD components in ATD's radar warning systems with a new technology that enhances a radar receiver's capability to process a large number of radar segments at rapid rates. Previous CVADs would tend to "choke" in a higher density environment.

ET CVAD allows our RWR systems to take full advantage of

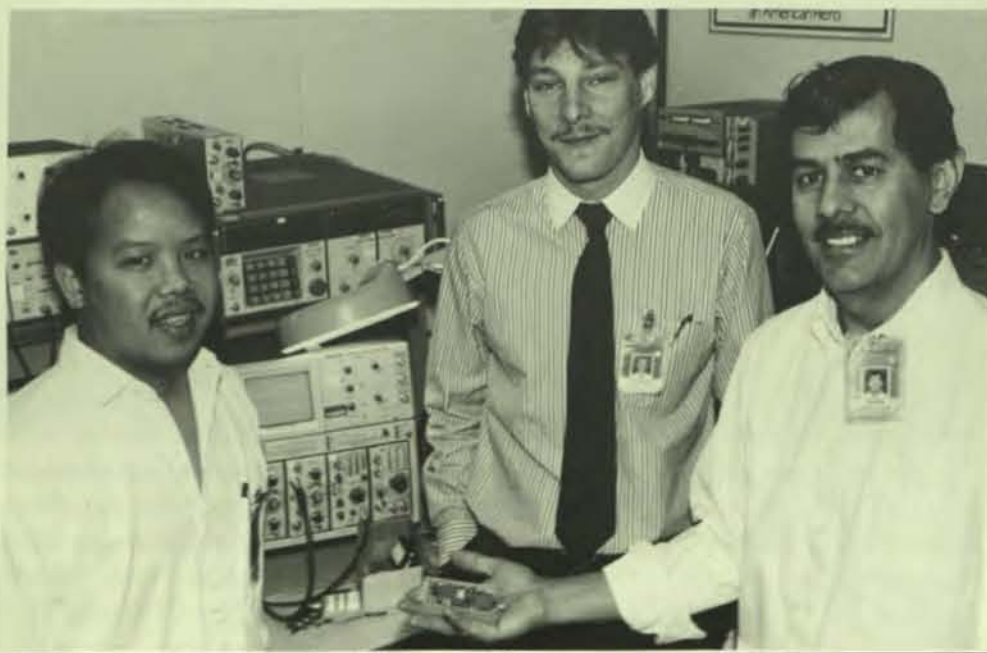
the advanced monolithic computer processor chips developed under the ECP-510 contract for high data rate. Secondly, this technology allows our RWR systems to operate in the presence of enemy radar jamming signals. The jamming signal is "cancelled out" allowing only desired signals to pass through and be processed.

Work began on this project in mid-1989, and the first ten ET CVAD engineering units were

completed in December 1989 in time to meet the high density requirements of the ECP-510 contract. Today, ET CVAD has become standard for new RWR systems targeted for the international market. It also provides ATD the means to easily improve RWR systems in the field by simply replacing one device and providing our customers with upgrades that will keep their RWR systems state of the art for years to come.

*Today, ET CVAD has become the standard for new RWR systems targeted for the international market. It also provides ATD the means to easily improve RWR systems in the field by simply replacing one device.*

*—Ruben Aguila*



*Contributors to the development of ET CVAD are Jesse Castillo, circuit designer, preamp section; Jean-Marc Delbecq, mechanical designer, housing and packaging; and Ruben Aguila, circuit designer, logging section. Not pictured are Rigo Reyes, technician; Don Mackerrow, engineering supervisor; and Bernard Buckvar, hybrid designer who were also key members of the development team.*



# Engineering ATD's Future

## Improved Quadrant Receivers Developed for ALR-67

Quadrant, or quad, receivers are designed to receive incoming high-band threat signals and forward them to the computer at the heart of the ALR-67 RWR system. Quad receivers provide microwave filtering, amplification, detection and compressed video for threat identification and location. They also provide amplified microwave signals for the ALR-67's narrowband Special Receiver.

One of engineering's most recent assignments was to improve the sensitivity of the ALR-67 system by improving the quad receivers. Called the Advanced Technology (A.T.) Demo Development project, its goal was to provide the system with a significantly greater detection range for threats. Improved sensitivity, in turn, would enhance the system's ability to pick up weaker signals or those signals further away which would provide better protection to the user.

Work began in November 1990 and was completed in February of this year. A flyable system, using the new and improved quad

receivers, sometimes referred to as "super quads," has been thoroughly tested and is now offered as an upgrade to the ALR-67 system. It is scheduled for flight test in the near future.

The A.T. Demo Development project showed ATD's ability to

consistently improve the signal sensitivity and signal density performance of the ALR-67. This modification, along with others planned for the ALR-67, will provide ATD customers with "state-of-the-art" performance, built into an already existing, highly-reliable system.



Marvin Wahl (second from left), who directed the AT Demo Development team for engineering, was assisted with the design by Dave Rannells. Chuck King and Dan Marchegiani (not shown) did the software modification, and Mike Schrock assisted with subassemblies. Other contributors not shown here are Jim Vogl, who did the mechanical; Jim Duncan and Roger Andre, the testing; and Steve Dixon, field service, who also assisted the team.

## BAW Technology

Over the past several years, ATD has pioneered the application of Bulk Acoustic Wave (BAW) devices to high speed processing of received radar data required for the real-time sorting and classification of radar signals. The emphasis has been on two distinct applications—RF channelizers and precision Direction Finding (DF).

As a channelizer, BAW devices assist in separating one signal from another. As a DF device, it processes incoming signals and determines their direction of arrival. Both RF channelization and precision direction finding are considered vital elements of future RWR and Electronic Support Measures (ESM) systems.

BAW channelizer technology is applicable to various signal processing and classification functions in the modern EW environment where multiple simultaneous signals with different frequency and modulation characteristics are present. The technology's novel phase direction finding capability satisfies the requirement for passive Angle-of-Arrival (AOA)

measurement in a multi-signal environment enabling the RWR system to track and identify various emitters.

BAW technology can also be used in a variety of other applications such as communications where it can eliminate jammer interference by substantially shortening the data processing time.

The primary advantages of BAW devices are their simple architecture (it's monolithic in structure), small size (it's smaller than a golf ball), passive nature (no operating power is required) and low production costs (they are built as efficiently as integrated circuits).

Dr. Sabet-Peyman has led ATD's BAW technology effort since 1985, and Litton holds valuable patents on the technology as a result of his work. In addition, channelization of RF signals using BAW technology was demonstrated for the first time in 1988 when a 16-channel device was successfully tested. More recently, ATD was the first to demonstrate DF capabilities using BAW technology. Present efforts concentrate on improving the device performance which could lead to production within a few years.

BAW technology promises to improve the performance of existing RWR systems. It is an exciting new technology, and it is expected to provide Litton ATD with new systems capabilities at a cost advantage that should put the company in a strong competitive position.



The primary advantages of BAW technology are its simple architecture (it's a monolithic structure), its small size (it's smaller than a golf ball), its passive nature (no operating power is required), and its low production costs (they are built efficiently, like integrated circuits). Add to that, its extraordinary capabilities, and it's easy to see there's a big place for BAW technology in ATD's future.

BAW technology promises to match or exceed the performance of existing RWR systems.

—Dr. Farhang Sabet-Peyman

## IR Analyzer Targets Commercial Markets

Work on the infrared analyzer began in November 1990, and the detailed plans for this venture were approved by management in February 1991. The infrared analyzer will be designed to monitor in-process control of various liquid samples. Prototype development has begun and is scheduled to be completed by December 1991. Applied Technology will provide engineering design, fabrication, assembly and testing for the infrared analyzer and Core Laboratories, of Litton Industries' Western Atlas Division, will supply the critical regression analysis software to determine the quality rating of the liquid samples. In addition, Core Laboratories will be responsible for marketing, installation, and worldwide field support.

The infrared analyzer utilizes acousto-optic (AO) based technology to analyze the optical absorption characteristics of liquid samples in the near infrared spectrum in order to determine their chemical content. With minimal modifications, this technology can also be adapted for use in medicine, environmental

control, food processing, agriculture, recycling industries and military applications.

ATD is a leader in the design of

AO devices which include the AOTF, Bragg Cell and other Bulk Acoustic Wave devices. In the past ATD has developed many one-of-a-kind AO devices and

prototype systems for DOD customers. This project will be worth watching and could serve as a model for future ventures.



The project team assembled to develop the infrared analyzer includes Heidi Shyu, project manager, and Dr. Chen Hwa, chief project engineer who will oversee the system design, specification and architecture (center). Paul Siegal is the system software engineer for the project; Ken Peters is responsible for the mechanical bench and equipment chassis; Ron Torreti, the RF subsystem; Bob Cohoon, the optical bench; and Ron Moss (not shown), the CPU and I/O module. Dr. Rocco DiFoggio of Core Laboratories is the developer of the Litton proprietary regression analysis software.



In addition to the more traditional use of bulk wave devices as modulators used in Acousto-Optical signal processing, Dr. Farhang Sabet-Peyman, creator of the innovation and chief architect of the implementation, has been developing state-of-the-art devices and subsystems based on the propagation and diffraction of BAW in solid crystalline media. His main emphasis since 1985 has been the development of BAW RF channelizers and precision direction finding devices for Electronic Warfare (EW) applications. Helping him with these projects are Bob Cohoon, who designed the transfer technology and testing for the project; Skip Finnigan, who provided mathematical analysis and computer modeling; John Rooney, who supported the project by designing the RF subassemblies and interconnections; and Jim Edmiston, who did the mechanical design and many of the drawings.

The infrared analyzer will be designed and manufactured by ATD to monitor in-process control of various liquid samples. It is a joint development with Core Laboratories, of Litton's Western Atlas division, which will market, install and provide worldwide field support for the product.

—Heidi Shyu

A flyable system, using the new and improved quad receivers, (sometimes referred to as "super quads"), has been thoroughly tested and is now offered as an upgrade to the ALR-67 system.

—Marvin Wahl

A new commercial products development venture has been initiated in the aerospace programs business area under the direction of Dr. Larry Langley. The overall business strategy is to leverage ATD's key DOD technologies into commercial ventures. The first commercial business diversification venture is a joint Core Laboratories/Applied Technology Infrared Analyzer development effort. Currently, Engineering is working hard to make this happen by the end of this year.



## ATD Profiles

### Hess Joins Litton ATD As Vice President Of Engineering



Robert Hess has been named ATD's new vice president of engineering, responsible for the engineering groups involved in developing new systems and enhancements for Applied Technology's radar warning systems. He will oversee hardware development, systems software, advanced systems and engineering project management functions.

Bob brings a background of program management, engineering management and project engineering of electronic warfare systems and subsystems to his new assignment. He also has designed and developed broadband active/passive antenna arrays and microwave circuit components for airborne, shipboard and tactical EW systems.

Bob has been with the Amecom division of Litton Systems since 1962 and most recently served as vice president of Amecom's tactical EW systems group. In that position, he directed all program efforts in developing the ALD-11 Low Observable "Electronic Surveillance Measurement System" (ESMS) for the General Dynamics A-12 Avenger aircraft.

The program consisted of a \$102 million full-scale engineering development (FSED) contract and two concurrent production contracts valued at \$52 million. He was also responsible for engineering design, development and manufacture of 10 FSED systems, 14 production systems, and the management of \$48 million in subcontracts.

While at Amecom, he also served seven years as vice president of product assurance and eight years as vice president of electronic warfare. His technical publications and presentations include "Electronically Variable Solid State Delay Line for FM/CW Airborne Radar Altimeter" and "Microwave Electronically Variable Time Delay Device Study."

Bob earned a BSEE at the University of Maryland, and he received a masters of business administration from the American Graduate University in Covina, California. He belongs to the National Security Industrial Association, National Management Association, American Society for Quality Control, the Association of Old Crows Electronic Warfare Society and the Navy League.

He served as president of the New Carrollton Boys/Girls Club which provided services for 1500 youngsters, and for 20 years coached baseball, football, soccer, basketball and other youth sports as well as serving as master of ceremonies at awards banquets for 10 years. His hobbies include golf, RV camping, bass fishing, tennis and racquetball.

Bob and Gail, his wife of 30 years, have three children. She and their youngest son Philip, 14, will be moving from Maryland to the San Jose area this summer. Their married daughter Vicki teaches elementary school in Maryland, and older son Scott is a software engineer also working in Maryland.

### Tom Wagner To Head International Marketing In The Pacific Rim



In an effort to expand ATD's presence in the Pacific Rim, Tom Wagner has been named to the new position of business development manager for international marketing/Pacific Rim. He will be headquartered in Singapore, and will coordinate all marketing efforts for ATD in the Pacific Rim.

Wagner is very familiar with the Asian market. Most recently, he was business development executive and chief test pilot for

GEC Ferranti Defense Systems where he was responsible for developing new business and marketing avionics products and system upgrades in the Asia-Pacific region. He worked with various countries and international military organizations, and he conducted flight testing of F/A-18 aircraft and avionics systems.

From May 1986 until July 1989, Tom was chief test pilot for Singapore Aircraft Industries, managing flight test programs for the first installation of the GE F404 engine in the A-4 Skyhawk. He developed test plans and flight test work orders, coordinated all pilot-related engineering changes on prototype aircraft, managed flight test teams and prepared and presented briefings to Singapore Air Force air staff and review boards.

While with Singapore Aircraft, he also performed all engineering test flights, including first flights on each of two prototypes, and he managed all flight tests, including follow-on test and evaluation of the A-4SU Super Skyhawk. Tom was also responsible for preparation of briefings for overseas customers, presentation of marketing proposals and conducting customer demonstration flights. He served as a consultant for aircrew station, aerodynamics, avionics and systems engineering on other type of aircraft modifications, including the F-5 and C-130.

Tom graduated from Auburn University in 1967 with a degree in aerospace management from the school of engineering. He held the rank of Lt. Colonel, USMC, before leaving the service in 1986.

He was a distinguished graduate from Officer Training School in 1969, ranking in the top 10% of pilot training class. He had two combat tours in Vietnam as an F-4 pilot, flying 385 combat missions, earning four distinguished flying crosses, 18 air medals and a congressional commendation for heroism. He attended the U.S. Navy Test Pilot School, and did advanced studies in Flight Test, Fixed Wing Mechanics in 1981.

Tom is a member of the Society of Experimental Test Pilots, and a member of the American Institute of Aeronautics and Astronautics. He has his commercial pilot's license, multi-engine jet with instrument rating, and has flown 26 different types of aircraft with over 4,300 accident-free flight hours. He and his wife Linda have two sons, Thomas, Jr., 18, and David, 22, both attending the University of South Florida in Tampa.

## Corporate Appointments

### Keane Named Director Of Pensions And Insurance

Michael E. Keane has been promoted to director of pensions and insurance for Litton. In his new position, Keane, 35, will be responsible for directing worldwide pensions and insurance functions. He succeeds retiring Thomas E. Holgate.

Keane joined Litton in 1981, and has been manager of investments and special projects in the corporate treasury department. He was named assistant treasurer in 1988.

### Litton Names Jeffery Assistant Treasurer

Derek R. Jeffery has been appointed assistant treasurer for the corporation. He succeeds Michael E. Keane, who has been promoted to director of pensions and insurance. He will be responsible for investment portfolio management, currency exposure management, cash management and project finance.

Jeffery, 47, joined the company in 1975 as a senior auditor and was promoted to assistant manager of corporate accounting in 1978. He has been manager of corporate accounting since 1979.



# Litton Changes Retiree Medical Benefits

Information on the new Litton retiree health care plan, effective April 1, 1991, was distributed to all employees in February.

Employees who meet the Rule of 50 (age plus years of service as of April 1, 1991) and meet the Rule of 75 at retirement will automatically be covered by the new plan when eligible.

The new plan was developed for Litton employees after careful evaluation of the current business environment and the economic uncertainties of the '90's. Litton has changed its retiree medical plan so that it can continue offering retiree medical benefits.

Driving the change are rising health care costs and new financial accounting standards that will soon require American corporations to recognize past, present and future expenses for retiree health benefits and reflect them on current balance sheets.

Litton is not alone in trying to control health care costs. Virtually all major employers are faced with the same problems. In developing the Litton Retiree Health Care Contribution approach, the corporation's goal was to provide a benefit for all

eligible employees. It is based on age plus years of service criteria, and it addresses Litton's concern for cost while contributing toward the health care protection of ATD's eligible employees.

**Here's how Litton's new plan works:**

The actual contribution depends on your age and years of service as of April 1, 1991, and meeting the Rule of 75 at retirement. To meet the Rule of 75, your age plus years of service must equal 75 or more.

Employees who retire early (55-65) and meet the Rule of 75 will be required to continue on the medical plan and pay 100% of the premiums to age 65 in order to receive the Litton Retiree Health Care Contribution. Retiree premiums may be higher than for active employees.

The fixed dollar amount of the new plan will provide you with financial assistance in purchasing coverage to supplement your Medicare benefits. You are eligible for Medicare benefits when you reach 65.

Your Litton-provided Retiree Health Care Contribution can be

used to Purchase a Medicare Supplement policy which picks up where Medicare leaves off.

**Here's a chart to show you the availability of the Litton Retiree Health Care Contribution at specific age and service combinations on April 1, 1991.**

Combined Age Plus Years of Service*	Litton-Provided Monthly Retiree Health Care Contribution**
80 or more	up to \$ 150
70 - 79	up to \$ 125
60 - 69	up to \$ 100
50 - 59	up to \$ 75
Under 50	\$ 0

\*You must satisfy the age plus years of service requirements as of April 1, 1991 and the Rule of 75 at retirement to receive the fixed dollar amount at age 65.  
\*\* You must provide evidence of your enrollment in a Medicare Supplement policy or an HMO.

The monthly dollar amount shown is provided for every person eligible for coverage. If you're married, you, your spouse and eligible dependents will each be eligible for a Retiree Health Care Contribution based on the total of your age and years of service as of April 1, 1991. In no case will you or your dependents receive more than the cost of the premium for the plan(s) you choose.

*Everyone needs to begin thinking about health care needs during retirement. The Retiree Medical Plan brochure contains valuable charts comparing Medicare Supplement Plans, and an extensive question and answer section that addresses most aspects of the plan. If you have additional questions, contact the Benefits Department.*

## A Gift For General Schwarzkopf

Litton's Happy Hookers invested many hours crocheting this 3' x 5' flag for General Norman Schwarzkopf. "It was one way we could say thank you for all that he did these last few months and to let him know we think he's really a hero," said Camille Zaferes, of business development and co-founder of the Litton Ladies Crochet Club.

More than 20 women from Applied Technology and Litton Computer Services created the flag during their lunchtime. Alan Monthei, of graphic arts services, originated the card, and ATD President Clayton Williams and LCS President Henry Bodurka joined in for the picture that will also be sent to General Schwarzkopf.



*ATD President Clay Williams (left) and LCS President Henry Bodurka (right) proudly hold the flag crocheted by Litton employees for General Schwarzkopf.*



# Applied Technology Has CONCERN For You

## Taking Time For Yourself

By Judy Hubert, MFCC

When was the last time you did something only for your own enjoyment, such as going on a hike, visiting a friend or just loafing around? Instead, do you find yourself saying "yes" to every request others make of you and telling yourself, "I'm too busy to do what I want."

If you always give priority to the things you "should do" and to what others want you to do, you will soon begin to feel resentful about your obligations. However, if you take time out for personal enjoyment; not only will you feel better about yourself, but you will also experience replenished energy to return and take care of life's "shoulds."

Here are some suggestions for taking care of yourself.

- Plan to do something you've always thought about doing but never had time to do. Take a short trip somewhere new, or take a photography class.
- Schedule a period of time on weekends to do something you enjoy or simply to relax. Catching up on household chores are important, but so is "R and R" time.
- Break out of routines now and then. This will add variety to your life, and it reinforces the notion that tasks don't always have to take precedence over time for yourself.
- Pursue hobbies and sports. If you don't have any recreational interests, try out new ones through classes or with friends.
- Be sure to take vacations periodically. You're less likely to experience "burnout" when you take time for yourself for fun and relaxation.
- Look at the balance of "wants" and "shoulds" in your life. If the scale tips too heavily to the "shoulds," start making time for some of your "wants."

Life is unpredictable. Sooner or later everyone experiences personal situations that make life extremely difficult. Every day brings new opportunities, hassles, pleasures and disappointments. Most of the time we "roll with the punches" and move on. But, every once in a while, something happens that turns our world upside down.

Applied Technology recognizes that these troubling situations can create prolonged stress. Eventually, this stress can lead to serious consequences for our health and well-being. For the past eight years, ATD has offered a beneficial program to help employees and their families deal with a broad range of personal difficulties. It's called CONCERN.

CONCERN is a free Employee Assistance Program offering confidential counseling services. Professional counselors provide assistance for personal difficulties such as family, marital, alcohol/drug, or psychological and emotional problems. Short-term counseling and referral services are available at no cost.

CONCERN was here to help us pick up the pieces after 1989's big earthquake. And, when Stan Denton died last year, CONCERN helped many employees deal with his sudden death. CONCERN has been ready to assist ATD employees in crises at work, but it has also helped employees through heart-breaking personal problems and tragedies.

CONCERN serves approximately 80 employers and 73,000 employees in the greater San Francisco Bay Area. Its offices are in Mountain View and San Jose, and it offers clients a wide range of counselors throughout the Bay Area and across the United States. In 1990, about 5000 employees in the Bay Area used CONCERN services for a variety of problems.

The most common reasons employees and their families use CONCERN are relationship and family issues such as marital and parenting problems or dealing with an elderly parent. These represent about 40% of CONCERN cases. Alcohol and drug related problems represent another 20% of the people seeking counseling services.

CONCERN's purpose is to help people identify and deal with their personal problems before their job satisfaction and performance are seriously affected. You don't have to wait for a major crisis before using the service. Using CONCERN can sometimes keep a small problem from becoming bigger.

**To take advantage of this outstanding program, anyone seeking assistance can call CONCERN: Employee Assistance Program at (415) 940-7100 or (408) 432-0616.**

Remember, this program is strictly confidential and voluntary. A request for assistance is considered confidential, and using this program will in no way affect

your future possibilities for career advancement with Litton or Applied Technology.

## CONCERN Representatives To Visit ATD

Representatives from CONCERN will be available to answer questions about the program on April 10, 1991, from 11:00 to 1:00 p.m. in the cafeteria and again on April 17th from 11:00 to 1:00 p.m. They'd also like to get ideas from you for upcoming "Brown Bag" programs.

Their goal is to refamiliarize employees with the services offered and to increase awareness of this unique benefit offered by Litton Applied Technology. Employees from ATD and LCS are urged to take advantage of this opportunity.

In early April, CONCERN will conduct a workshop to reorient ATD's managers on the program and how it can help them and their employees.

In the future, CONCERN will offer "Brown Bag" workshops during lunch time--on subjects like stress reduction, keeping up with teens, beating the holiday blues, goal setting and other topics suggested by employees. They'd like to know what additional subjects you'd find interesting; so in April, when they are here, stop by and give them some ideas.

## EDN Caravan Visits ATD



*Electronic Design News' traveling road show, displaying the products of at least 15 vendors, parked in front of H-1 on March 15, and employees met with factory trained representatives of participating suppliers who demonstrated products and answered questions.*

## Dr. Farhang Sabet-Peyman

(continued from page 1)

Winners of the Advanced Technology Achievement Awards are chosen by a Litton committee of experts from patents and licensing, advanced technology engineering and planning. Their selections are based on the creativity and uniqueness of each particular technology, its ability to strengthen the company's competitive position and its potential to expand Litton's position into new or existing markets.



# IMAGE

Published By Litton Applied Technology

May 1991

## ATD At Defense Asia

U.S. Ambassador to Singapore Robert Orr visited the Litton Applied Technology booth at Defense Asia. He offered his support and assistance to ATD in its efforts to expand its business in Asia and the Pacific Rim.

The show, one of three this Spring, highlighted ATD's 30 years of proven leadership in threat warning systems.

Participation in the Defense Asia show was continuing evidence of ATD's aggressive pursuit of sales in overseas markets, particularly the rapidly growing Asian market. Shown at the booth are Jerry Everman, vice president of business development; Ambassador Orr; Chuck Sloan, manager of advertising/marketing services; and Tom Wagner, ATD international marketing manager for the Pacific Rim.



### In This Issue:

Spotlight On Manufacturing

ATD At Defense Asia

New Director of Strategic Planning Named

A Letter From Brenda Schwarzkopf

An Interview With ATD's Very Own Baseball Expert

Litton News Roundup

April 19, 1991

Ms. Camille Zaferes  
Litton Ladies Crochet Club  
4747 Hellyer Avenue  
Post Office Box 7012  
San Jose, California 95150-7012

Dear Ms. Zaferes:

Thank you so much for the beautiful afghan and the wonderful card. I know that Norm is going to love both of them when he sees them! I can't tell you how much I appreciate your thoughtfulness.

I'd also like to thank you for your support of our servicemembers. It has been a heartwarming experience for me to see the American public stand behind these brave men and women.

Please pass on my appreciation to everyone there at Litton.

Sincerely,

*Brenda Schwarzkopf*  
Brenda Schwarzkopf

## A Letter Of Thanks

Brenda Schwarzkopf, wife of General Norman Schwarzkopf, sent this warm letter of thanks to the more than 20 women from Litton Applied Technology and Litton Computer Services for the American flag they crocheted, and to everyone at the Hellyer facility who supported the service men and women in the Gulf.

Not content to rest on their laurels, the Litton Ladies Crochet Club is embarking on a new project, knitting afghan throws for those residing in nursing homes. Each throw will be the product of the entire club as one throw is made from many small knitted squares.

Any ATD employee, who knows of someone who might like one of these warm lap covers, should contact Camille Zaferes, #4091, or Chris Rehmyer, #4736.



## Litton Moves To Acquire Several New Ventures

### Litton Completes Purchase Of Varian's Solid State Unit

Litton Industries and Varian Associates announced the completion of the purchase by Litton of Varian's solid state electronics unit in Santa Clara, California. The purchase price and terms of the agreement were not disclosed. The operation had sales of approximately \$20 million in 1990.

The Varian operation brings additional advanced technology and market share to Litton's solid state microwave business. Varian's products, including gallium arsenide microwave diodes and microwave monolithic integrated circuits, will enable Litton to better serve the electronic warfare, missile, military and commercial radar and communications equipment markets.

### Litton Declares Cash Dividend On Preferred Stock

Series B \$2 Cumulative Preferred Stock cash dividend of 50 cents per share has been declared by the Board of Directors of Litton, Inc. This regular quarterly dividend is payable July 1, 1991 to shareholders of record June 13, 1991.

## Get On The Savings "Bond-Wagon"

Litton Chairman and CEO Orion L. Hoch, left, kicked off the 1991 U.S. Savings Bond Drive with Secretary of the Treasury Nicholas Brady. Mr. Hoch was appointed by Mr. Brady to serve as the Electronics Industry Chairman of this year's campaign.

The Electronics Industry's goal for 1991 is to sign up a total of 51,000 employees as new savers or as current Bond buyers who increase their allotments. "Our goal is to lead the way by placing Litton on the 1991 U.S. Savings Bond Honor Roll," said Mr. Hoch.

ATD's 1991 Savings Bond drive will be held this summer. Look for details in future editions of "Image" and "Instant Items."

### Intermec Agrees To Be Acquired By Litton

Litton Industries and Intermec Corporations jointly announced that the companies have executed a definitive merger agreement providing for the acquisition by Litton of all outstanding shares of Intermec at a price of \$24 per share. The Board of Directors of both companies unanimously approved the merger in mid-April.

"The planned acquisition will be beneficial to both companies," said Alton J. Brann, Litton president and chief operating officer. "Intermec is a fast growing, well managed and financially sound company. Through our Industrial Automation Systems group, Litton will further enhance Intermec's market position in the systems integration and systems management side of the business. This should add to the company's already excellent growth expectations. The acquisition will strengthen and expand our industrial automation activities and provide us with an entry into many new markets."

Intermec, based in Everett, Washington, is a leading company serving the fast growing market for automatic identification systems and services that improve productivity and efficiency. Primary customers include manufacturing, distribution, services, health care, government and transportation industries.

## Roger Cope To Direct ATD's Strategic Planning



Roger Cope joined Litton Applied Technology as director of strategic planning and marketing analysis. He will coordinate the development of ATD's annual strategic plan, and be responsible for the analysis of long-range investment and growth opportunities. Market research, advertising and publications services will also report to him.

Roger will be looking ahead five or more years for the division, and will focus on strategic alliances and new markets. In the past year as a consultant for ATD, he helped lead the effort to develop the division's current strategic plan. This included evaluating the impact of the recently announced Litton intent to acquire General Instrument's Defense Systems Group.

Roger has extensive experience in all aspects of strategic planning and implementation. He was previously a corporate vice president at Dart Industries and AM International. In both organizations he was responsible for strategic planning, acquisitions, licensing and long-range allocation of resources. As a captain in the U.S. Air Force, Roger served as a navigator from 1960 until 1964. He was a member of the California Air National Guard for another four years.

Roger has a B.S. in Business Administration and an M.B.A. in Finance from the University of Southern California. He and his wife Elizabeth are relocating to the Bay Area. His two sons, Kevin who works in New York and Jamie who attends college in Ohio will remain back east. Roger's interests include horses, skiing, hunting and the great outdoors.

## ATD Image

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Production: Deborah Jensen and Linda Hadfield





# Craig Newton: Security Guard By Night, Sportswriter By Day



Rubbing elbows with the greats and near greats, Craig Newton's earned the reputation of a tough, but fair interviewer. In the highly competitive field of sportswriting, he covers standing-room-only sports events with the best of reporters.

For Craig, who has toiled at his craft for over five years and worked the swing shift at Hellyer as a security guard for almost six years, it's been a dream come true. In addition to his sportswriting, Craig is also a full time member of the Loma Prieta volunteer fire department located off highway 17 in the Santa Cruz Mountains, and he serves as a volunteer for the Red Cross on its disaster response team in Santa Cruz County.

## Wanting to Write Began When I Started Collecting Sports Cards

Craig's interest in writing about sports is tied to his hobby of collecting baseball, football, hockey and basketball cards. "I got my first pack of cards from my dad when I was 2 1/2 years old. I remember as a kid going door to door all over my neighborhood asking for baseball cards," he said.

"I've gone to garage sales looking for old cards and found some winners. When I take them up to the sweet, older woman sitting at an old beat up desk piled high with Abba 8-track tapes, and I ask her how much for the cards, quicker than Matt Williams can shovel the ball from his glove to second base for a double play, this same woman whips out a price guide and proceeds to grade each card. That's how far collecting has come."

Now, some 280,000 cards later (that's his collection right now, and he's been through many more to get to this number), Craig's achieved his life-long dream to be a sportswriter.

## Free-Lance Writing Has It's Ups...

Today, he's a free-lance writer for Krause Publications of Iola, Wisconsin, publisher of "Baseball Card Magazine" "Sports Collectors Digest", "Fantasy Baseball", and eight other magazines. With Hockey coming to the Bay Area, he'll cover that sport for another Krause publication too.

"I've interviewed some really interesting people over the years --Pete Rose, Baseball Commissioner Faye Vincent, Orel Hersheiser, Jose Canseco, and Joe Montana. I covered Will Clark when he was in the minor leagues." One of Craig's favorites to interview was actor Corbin Bernsen who plays Arnie on "LA Law."

## ...And Downs

It wasn't always easy, though, for Craig. "I started my career in high school journalism. I remember my teacher told me I had great enthusiasm but that I wouldn't make money as a sports writer. That was the challenge I needed."

In the early 80's, Craig landed an unpaid position with the Oakland Raiders, helping his very close friend Art Snyder as a runner in the press box handing out game statistics. "Art allowed me to see behind the scenes of pro sports, and, unlike my journalism teacher, I really owe Art for my tenacity and desire to be sportswriter."

Craig called up lots of newspapers in the Bay Area offering to cover sports for free just to get published. The Santa Clara Weekly took him up on the offer, and he started covering high school sports and the local junior college teams, mainly because the editor told him that the paper was too small to get credentialed for major college and pro sports. Meeting this challenge, Craig sent out letters and followed up with phone calls. The San Jose Bees, Stanford and San Jose State welcomed him. He was the only weekly reporter covering the San Francisco Giants and the 49er's at all home games.

By 1987, Craig was the only weekly reporter granted credentials for the playoffs and the World Series. "I'm very proud of that, and I have framed the letter saying I was approved."

In 1988 Craig submitted an article on Orel Hersheiser to Krause Publishing. "I had done the interview previously on my own and it was just sitting on the shelf when the Dodgers swept the A's. I had a feeling I could cash in on their success. Whether it was luck or timing, the story was bought, and Craig finally earned his first check as a writer.

## Back To The Present

The rest is history, as they say. He's published over 26 articles with Krause, and he's still enamored with sports. He attended spring training this year to cover the rookies for "Baseball Card Magazine". And, he even completed a story on Rickey Henderson at Spring training camp. This summer he's headed for Pebble Beach to interview the stars of the newest card fad--PGA golf cards.

In the real world, Craig's still a volunteer fire fighter and spends his late afternoons and evenings with ATD as a security guard.

He's just finished Emergency Medical Tech School and plans to become a ham radio operator for emergency responses. The lesson to be learned from Craig's story, though, is that it's fun to follow your dream. You never know where it can take you.

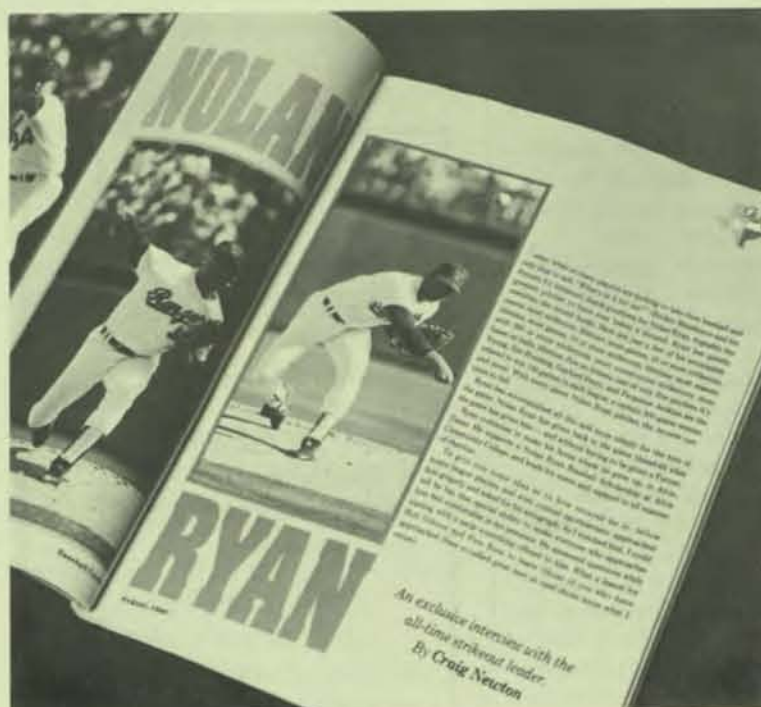
Here are some of Craig's thoughts on some of the other people he's interviewed:

**Pete Rose:** "The saddest story I have ever had to do. If he ever is reinstated in baseball, he should be nominated for the Hall of Fame. It's not the Hall of Swell Guys Who Never Drank Or Cheated On Their Wives."

**Jose Canseco:** "Sure he's paid a lot of money, but does he make too much? Only if there's someone else who can do what he does."

**Joe Montana:** "He never stops walking while talking with you; so you have to be prepared to ask the questions fast. The first time I met him was two months after his back surgery; he backed right into the door knob of the training room while talking with me. I thought, there goes the season!"

**Willie Mays:** "He has the reputation for blowing up at writers, but for some reason he trusted me enough to give me his home phone number. When I finally caught him at home, he spent 45 minutes telling me why he wouldn't do the interview. He told some wonderful stories at the same time he didn't want to give me the interview, and they became the basis for the article."





## Litton World News Roundup

Litton Material Handling received a \$6 million award from Sears, Roebuck and Company to provide a totally automated, high speed material handling system for Sears' new \$150 million catalog distribution center in Belleville, Ontario, Canada.

The U.S. Navy awarded Litton Guidance & Control a \$13.6 million contract to produce guidance devices for submarine missiles. This contract brings to 418 the total number of units ordered by the Navy from Litton in a program that has now received a total of \$57 million in contract awards.

Litton Guidance & Control also received \$24.5 million in new funding on previously awarded U.S. Air Force and foreign military sales contracts for production of laser gyro navigation systems for fighter and transport aircraft. The total number of Litton systems ordered to date under these contracts is 1,597.

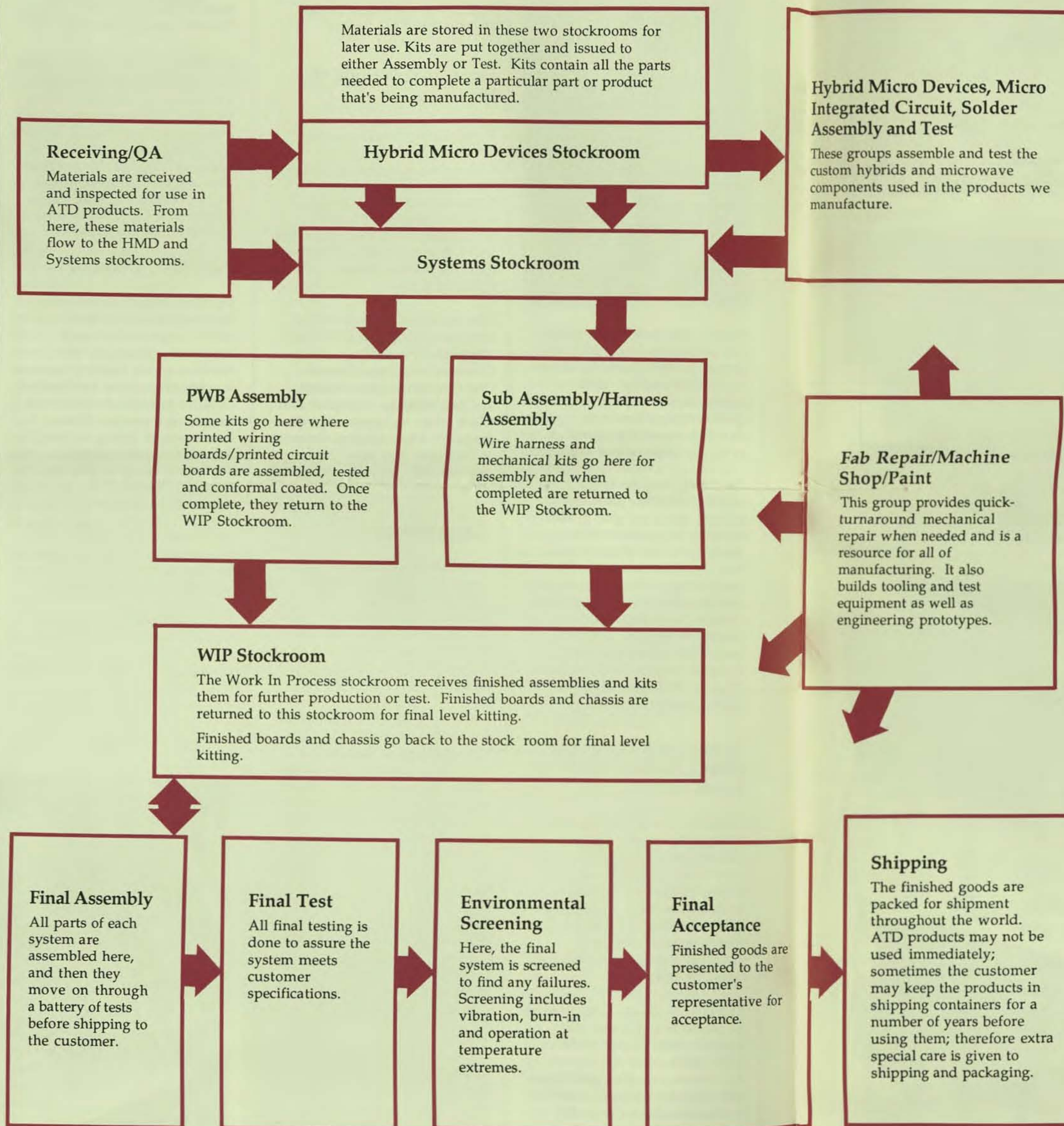
Litton Special Devices won its first production order from the U.S. Coast Guard for 477 emergency position indicating radio beacons (EPIRBs) with an option for another 523 units. EPIRBs installed on maritime ships, pleasure craft, fishing vessels or other craft, can help rescuers locate them in distress.

Litton Laser Systems received a multimillion dollar addition to a previously awarded contract from Martin Marietta for 119 more laser rangefinder/target designators for the target acquisition and designation sights of the U.S. Army's AH-64A Apache helicopters.

Litton's Laser Systems division has been awarded multimillion dollar additions to previously awarded contracts by McDonnell Douglas Electronic Systems Company and Northrop Corporation to produce 150 more laser rangefinder/designators for U.S. Army helicopters.

# What A Year It Was For Manufacturing!

## Here's How We Make Those RWRs:



## A Look At ATD's Manufacturing Process

The current fiscal year may be winding down for many at Litton Applied Technology, but it's revving up for a fast and phenomenal finish for those in Quality Operations.

As the clock strikes midnight on July 31st, employees in manufacturing and those who support the manufacturing effort for the company will be able to look back on some significant achievements. They all can take credit for ATD's successes this past year.

"To begin with, ATD's superior delivery performance won Applied Technology the U.S. Air Force's coveted Blue Ribbon Contractors Award," said Carl Ludwig, vice president of Quality Operations. "While we in Quality Operations can take some credit for the award, it required teamwork and the cooperation of many in the company. As product improvements have moved from the labs to the production floor, our people have been able to improve assembly run rates significantly. In addition, we were able to meet production demands while consolidating our two facilities in what could have been a very disruptive transition period for us."

"Production costs continue to go down because we've done a good job improving quality," he continued. "In fact, we've been able to cut costs in half over the last four years because of everyone's efforts and their attention to quality."

"We're also very proud of the way everyone in production and those supporting production in quality, test and fab worked together during the November-January push to produce the ALR-67," he added.

While we can't give you a detailed look at how ATD's products are made, this flow chart shows you generally what happens during the manufacturing process. There are a number of steps in the manufacturing process, each the effort of many dedicated employees. It is the combined efforts of all of these employees, pulling together as a team, that ensures the quality of all ATD products.

It was quite an effort, and to everyone's credit, production of the ALR-67 more than doubled in that time frame. "It required real organization and a commitment on everyone's part," said Greg Williams, director of electronics manufacturing operations, who sees another push taking place in the next three months. "It will place the same tremendous demands on our people, but we're in a position to deliver even better performance," he commented. "Being under one roof helps, and so does the success we had last fall."

Production may not double, because the mix is different this time," said Dick Nelson, systems manufacturing manager. "We'll be working on both the ALR-67 and the ALR-69, and part of that work will be producing the Mod Kits (sub-assemblies), spares, and the ECP-510 computer consisting of three new printed circuit boards. We'll still feel the pressure, though, because there's lots to do."

"Meeting ETCVAD commitments is one of our biggest challenges," said Ken Heberling, manager of components manufacturing. We are also looking at a tremendous amount of on-going production, and we're counting on everyone to pull us through. Our assembly people did it before, and I know they can do it again."

Making sure that all parts of manufacturing, test and quality pull in the same direction will fall mainly on the shoulders of ATD's Quality Operations area analysts who include, Mary Gray, Mark Hall and Mike Weis in systems assembly; Pat Lawrence and Ron Bechler, Chris Pavlina and Mike White in first article assembly; Rachel Riojas, Linda Elachkar, Alice Brock, Nappy Caliguiran, Pete Mendoza, David Viergutz and Mike Murphy in HMD, as well as Dan Reutlinger in Fab.

Making sure ATD continues to remain a world leader in the manufacture of advanced threat warning systems; however, depends on the skills and talents of all of the men and women involved in the operations process. As you can see from the following chart, it can sometimes be a very complicated process.

Our hats go off to the people in Quality Operations for their continued efforts and their excellence in the production of ATD's mature product lines as well as for their work with engineering to develop prototypes. Keep up the good work!

## Litton World News Roundup

Litton's Airtron division received a five-year purchase agreement from the General Electric Company for the manufacture of microwave waveguides for the Aegis radar system. The radar systems are used by the U.S. Navy aboard Aegis guided missile cruisers and destroyers. The five-year purchase agreement could have a program potential of \$16 million.

Litton's Computer Services division and ADU Credit Services have teamed to provide retailers a total credit management system designed to reduce the cost and increase the effectiveness of a retailer's credit operation. LCS will use its nationwide data network to deliver continuous, reliable, instantaneous communications and computing services 24 hours a day, every day. ADU will provide an integrated credit software package developed exclusively for retailers.

Litton Italia S.p.A., Rome, Italy, was selected prime contractor to develop the ring laser gyro inertial navigation system for the European Fighter Aircraft. Under a three-year multimillion dollar development contract, the company will supply 25 Litton LN93EF systems for the four-nation fighter aircraft project with a production potential of approximately 800 aircraft.



# What A Year



*First Article*



*Thick Film Fabrication QA + Rework*



*PWB Prep*



*Stiffing up our new dies!  
Getting ready to move in.*



*PWB Assembly*



*Hybrid Prime Assembly*

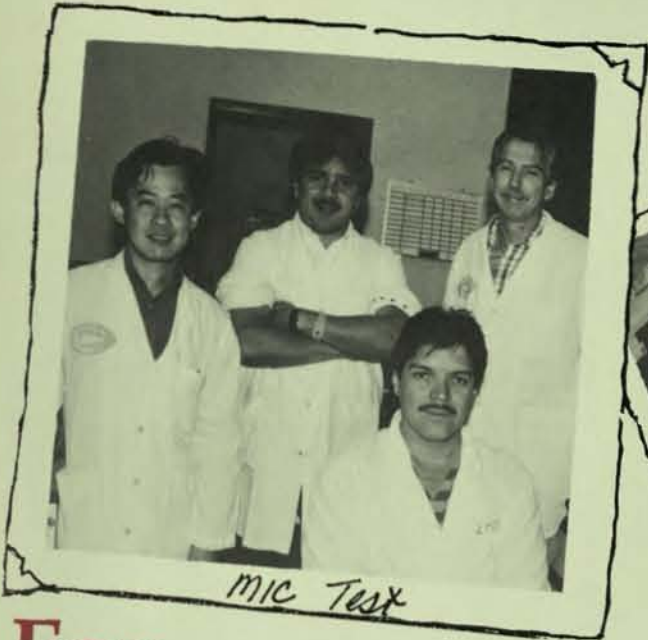


*Final Assembly*

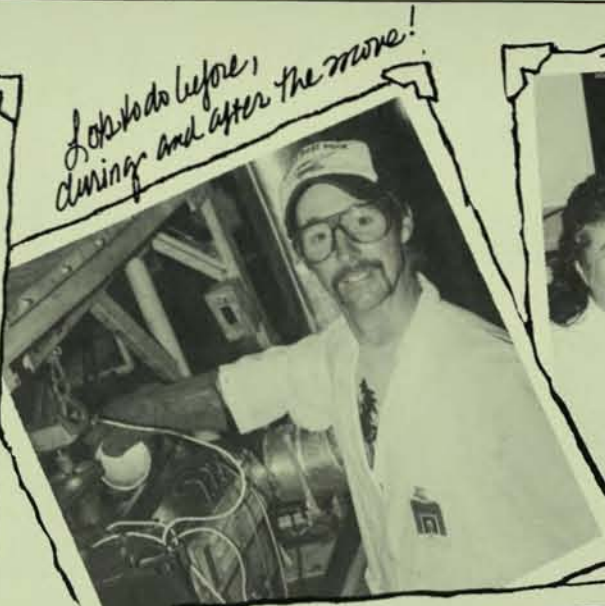


*Final Assembly*





MIC Test



Looks do before, during and after the movie!



Thin Film Fabrication

Celebrating our Blue Ribbon Award

# For Manufacturing!



Sealing, Paint and

Final Assembly



MIC Assembly



PWB Assembly



Our New Home!



Cable Harness Assembly



## Litton World News Roundup

*Litton's Electron Devices division received a multimillion dollar contract from the Norwegian Army Material Command for night vision devices. The award includes deliveries of goggles and binoculars over a 3-5 year period beginning in 1991.*

*Litton Electron Devices received a \$3 million award from the U.S. Navy to provide 165 final power amplifiers for the Aegis AN/SPY-1 radar system. Program value to Litton for these Aegis radar amplifiers now totals approximately \$24 million.*

*Western Atlas International and Tyumenftegeofizika have signed an agreement to establish an enterprise that would jointly provide technical services in the U.S.S.R.'s Russian Republic. The Russian organization provides oilfield services for the Ministry of Oil and Gas in the huge Tyumen province which is more than twice the size of Texas and source of about 60 percent of the Soviet Union's oil and gas.*

*The U.S. Navy has awarded Litton's Ingalls Shipbuilding division a \$13.4 million contract to continue providing engineering and planning support to the Navy's Arleigh Burke Class Aegis guided missile destroyer program. Ingalls currently has construction contracts for eight of the ships.*

## Dr. Sabet-Peyman Honored By Litton



*Dr. Farhang Sabet-Peyman (third from left) receives his Litton Advanced Technology Achievement Award from Litton Industries President and Chief Operating Officer Alton J. Brann. On hand for the ceremonies were Michael R. Brown, corporate vice president and group executive of the Electronics Warfare Systems Group; Clayton A. Williams, president, Applied Technology; Russell A. Cannon, patent advisor, intellectual property, Applied Technology; and M. Michael Carpenter, staff vice president and director of intellectual property law for the corporation.*

Dr. Farhang Sabet-Peyman, ATD staff engineer, was one of nine Litton employees honored May 1 at the company's Advanced Technology Achievement Awards presentation in Charlotte, North Carolina. In keeping with a program that began in 1980, Litton once again this year recognized scientists, engineers and technical staff members for their proficiency, creativity and exceptional contributions to the company's technology and growth.

Dr. Sabet-Peyman was honored for his demonstration of radio frequency channelization and precision direction finding with Bulk Acoustic Wave (BAW) technology. This high-performance, low-cost device gives Litton a competitive advantage in tactical and space RWR markets. He received a \$5,000 honorarium and a personalized plaque.

The prestigious Charles B. Thornton Award, went to Robert S. Symons of Electron Devices, San Carlos, California, and to Dr.

Gunter Spahlinger of LITEF GmbH, Freiburg, Germany. They each received \$10,000 and a handcrafted glass sculpture. Additional Litton award winners included Dr. Hyo-Sup Kim and Dr. Lozure Gene Wolfgang from Electron Devices in Tempe, Arizona; Dr. Graham J. Martin, from Guidance & Control Systems, Woodland Hills, California; Hugh P. McAdams, Jr., and Albert C. Paulovitz from Litton Special Devices, Springfield, Pennsylvania; and Dr. Rocco DiFoggio of Core Laboratories, Houston, Texas.

## ATD Celebrates Museum's 50th Anniversary



*Pictured at the ceremonies are U.S. Congressman Richard Ray, Mrs. Richard F. Gillis, M/General Richard Gillis, who hosted the event, Mr. Eddie Wiggins, Foundation Board Chairman, Clayton Williams, president of Litton Applied Technology; B/General Robert L. Scott, Jr., (Ret); L/General Robert E. Hails (Ret); M/General Cornelius Nugteren, (Ret), Mr. Lawrence Stone, wife of the base commander.*

The Museum of Aviation at Warner Robins Air Force Base, Georgia, invited Applied Technology President Clayton Williams to participate in its 50th Anniversary celebration and the opening of "Hanger One", its new addition. A pictorial history of the air base, published for the occasion, was presented to Mr. Williams for ATD's continued support of the museum. The book preserves the accomplishments of the people and missions that helped support U.S. military aviation throughout the world.