



***On the
threshold
of a
new
era***



the horizon is where we put it

To the Stockholders of LTV:

There are significant pivotal years in the lives of most corporations — decisive periods when plans, decisions, and events mesh together to set the course for the future. Without question, 1964 was such a year for Ling-Temco-Vought, Inc.

Of major consequence was the accelerated change in defense requirements by the Department of Defense — LTV's major customer. It is generally agreed that a nuclear stalemate has been achieved between the major East/West powers and, as a result, the United States' major strategic systems buildup is reaching a plateau. In addition, a few years ago, a change in U. S. national security policy began to become apparent through the need to meet the threat of limited wars, wherever they might erupt. The result is a growing requirement for highly mobile tactical weapons and support systems such as attack aircraft, assault transport aircraft, battlefield missiles, special purpose ground vehicles, and reconnaissance and surveillance systems. Beyond the changes in weapon requirements, the Department of Defense and other government procurement agencies began to revise their method of procurement for major system development programs from the cost-type contract to the fixed price type contract. Superimposed on the latter is the necessity for rigorous cost reduction programs. These factors fairly well describe the tenor of the business life today within the electronics/aerospace industry.

What does the future hold for the defense industry? President Lyndon B. Johnson in his "State of Our Defenses" message to Congress in January 1965 stated: "This world's most affluent society can surely afford to spend whatever must be spent for its freedom and security. We shall continue to maintain the military forces necessary for our security without regard to arbitrary or predetermined budget ceilings." The President also stated "the government will get a dollar's value for a dollar spent."

Against this background, LTV has compiled an impressive record by obtaining a series of extremely significant development and production projects, some of them while the corporation was in the midst of shaking down earlier acquisitions, paring operations which did not fit our planned technological patterns, and in general, shaping up a new company. These programs include the XC-142A vertical takeoff and landing assault transport for all three major military services; the Lance battlefield missile for the Army; the A-7A light attack aircraft for the Navy; the Army XM-561 six-wheeled special-purpose vehicle which has a wide

range of tactical combat applications; space maneuvering units; super-power radar and radio projects, and an increasing number of highly sophisticated electronic airborne surveillance and reconnaissance systems. At least two of these development programs, and possibly more, are approaching their production cycles simultaneously. Thus, we find our corporation in an enviable position during a period of change in defense strategy — able to advance, with a new approach, from a position of strength.

While these two factors were developing — the need for flexibility to meet new military requirements, and our strong position in diverse military markets — significant related things were happening inside the company. In the past three and one-half years, we have regrouped our operating units, disposed of some misfits, improved our short and long-term debt picture,

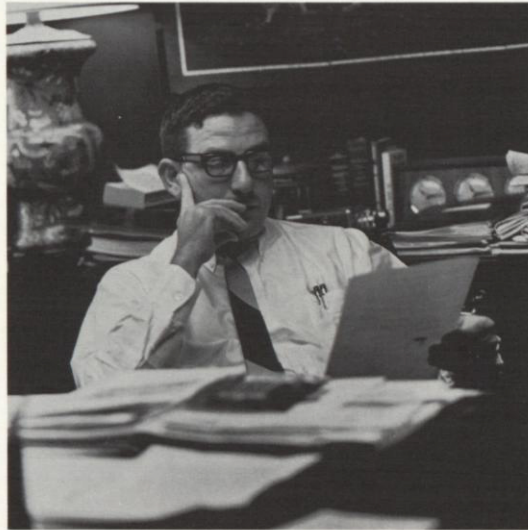
and collected our strength into 11 divisions as opposed to an original 24. And while divesting ourselves of some of the operating units, we still maintained our basic sales volume through internal developments.

In that three and one-half years, major portions of the corporation attained points of considerable maturity in management, technical progress and business backlog. Division management was strengthened through regrouping and through corporate guidance. We in LTV management came to know well the operating units—their management, their products and their capabilities.

We could have chosen to stand pat on these accomplishments, with a bright future assured for the relatively short term. But close examination showed that from our present strong position we could best serve the long-term interests of our stockholders, customers and employees by developing greater flexibility and adaptability.

Our most logical move in this direction was to tie similar units more closely together for their common good, allowing management specialization for closer accord with needs of the customers. This would shorten lines of communication between customers and the operating units developing the products. It would create better identity of product lines in the minds of the customers. It would give these units greater flexibility and quicker reaction time in meeting the changing needs of those customers.

This move we term "**Project Redeployment.**" Types of business and technologies, plus geographic considerations, directed the establishment of three subsidiary companies:



LTV AEROSPACE CORPORATION, with Paul Thayer, who has been LTV executive vice president, as president. He has 17 years of aerospace industry experience, much of it in high-level management, built on top of a distinguished career as a military and experimental test pilot. He will head a corporation comprised of the former LTV Vought Aeronautics, LTV Astronautics, LTV Michigan, LTV Range Systems and Kentron Hawaii, Ltd. These LTV operating units in recent years have had annual sales in the \$170-to-\$220 million bracket.

LTV ELECTROSYSTEMS, INC., headed by Fred Buehring, LTV vice president and general manager of LTV Temco Aerosystems Division. A veteran aircraft modification expert who helped to build Temco into an aerospace company, he led his division into the highly sophisticated field of airborne reconnaissance and surveillance. This subsidiary consists of the Aerosystems electronics and specialized aircraft modification capabilities at Greenville and Garland, Texas, and at Donaldson AFB, Greenville, South Carolina. The division's sales range the past few years has been from \$21 million to \$50 million.

LTV LING ALTEC, INC., headed by Alvis A. Ward as president and Robert C. Lewis as executive vice president. As president of LTV Altec, Alvis Ward, an authentic pioneer in sound systems, directed the activities of all Altec units, including Altec Lansing, Altec Service Company, Peerless and Gonset, and brought these units to the fore in quality sound and communications systems. As president of LTV Ling Electronics and its Calidyne unit, Robert C. Lewis directed development and marketing of vibration and acoustic environment testing equipment and electron tube and solid-state pulse modulators. LTV Ling Altec, Inc., based in Anaheim, Calif., has had sales volume ranging from approximately \$13 million to \$18 million per year.

Three divisions — LTV Military Electronics, LTV Continental Electronics, and LTV University, remain under direct corporate control. Certain other elements of the corporation, such as the LTV Research Center and the LTV Data Processing and Computing Center, will remain unchanged, with their services available to all operating units.

Announcement of **"Project Redeployment,"** which will be detailed in a prospectus expected to be mailed in the near future, was made through the press and in a letter to stockholders. The company plans to offer holders of common stock one-half share of common stock in each of the three new subsidiaries, plus approximately \$9 cash, for each share of the LTV com-

mon. Tenders will be accepted only in multiples of two, with a minimum of 400,000 shares of common stock to be solicited for exchange. LTV would reserve the right to reject all offers if less than 400,000 shares are tendered and to accept additional shares over 400,000, in which event the shares may be accepted on a pro-rata basis. Registration statements have been filed with the Securities and Exchange Commission and no offer will be made until proper clearances have been obtained, at which time the offer will be made through a prospectus.

Each of the three new subsidiary companies has its own strong, specialized management, business backlog, and assets. LTV Aerospace Corporation, for example, has two major aircraft development programs going simultaneously — the tri-service XC-142A V/STOL and the A-7A light attack aircraft for the Navy — at a time when some observers have been

saying that major aircraft programs are a thing of the past. In addition, LTV Aerospace Corporation has the Lance battlefield missile, the XM-561 vehicle, the PATA low ground pressure vehicle and other advanced concepts under development. LTV Electrosystems has had most of its sales in the growing tactical fields of electronic reconnaissance and surveillance. And LTV Altec, Inc., is well established in the vibration testing, instrumentation, sound system and sound servicing fields. We believe that these three new subsidiaries can thrive in their own environments and make further economies to provide their customers with a true dollar's

value for every dollar spent. They will be able to plow their own furrows in the fields they know best, with increased motivation to make their programs fully successful. Their efforts now will be noted not just by LTV management, and their own individual managements, but also by their stockholders.

An Air Force spokesman stated last summer: "The companies that are smart, that are run by businessmen, will survive. But they have to take a hard look at themselves in the mirror." This we have done. LTV as a corporation has met change with change, challenge with innovation and requirements with ability. Your company is a major factor in the defense industry and has every intention of remaining so, although we are fully aware that it is a hazardous business and intrinsically unpredictable. We believe that **"Project Redeployment"** has given our stockholders not one but several strong units — the three new companies, the parent LTV corporation, and the three units remaining on divisional status. It is our intention to help these three remaining divisions along the road to full maturity.



This letter would be incomplete without calling attention to our research and development efforts. LTV has invested heavily in R&D in relation to its sales volume. The results of this action we believe are self-evident. Our current projects, such as the XC-142A, the A-7A, super-power transmitters, solid-state pulse modulators, acoustic instruments, airborne reconnaissance systems, the Lance, the XM-561, the PATA, a ducted-fan VTOL aircraft system we call ADAM, thrust-vector controls, electrostatic speakers, space launch and re-entry vehicles, anti-submarine warfare and oceanographic projects — all these and more owe their origins to, or were greatly aided by, the careful allocation of funds for research. We intend to retain the LTV Research Center on a corporate level, coordinating the research efforts of the companies and divisions, and furnishing immediate, on-the-spot aid to any of the LTV units needing it.

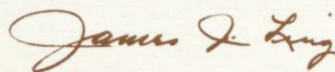
We believe that our careful allocation of the research and development dollars, along with early diagnosis of the then-future shift to tactical warfare systems, is in large part responsible for LTV's present position of strength. By the timely re-direction of emphasis toward tactical warfare products, we gained both new technologies and new customers.

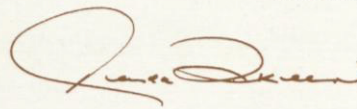
Financial results show 1964 to have been a successful year. Net earnings amounted to \$2.31 per common share outstanding at 1964 year end. In 1963, net earnings were equal to \$2.12 per common share outstanding at year end, although 1963 earnings benefited from the remaining tax loss carry-forward from 1961. If adjusted to reflect taxes at the effective 1964 rate, net earnings in 1963 would have amounted to \$1.54 per share.

Net sales of \$322,859,000 for the year remained close to 1963 levels, even though 1963 figures included approximately \$20 million in sales of a subsidiary company disposed of early in 1964. For comparable operating units, therefore, 1964 sales were up more than \$13 million over the preceding year.

On the following pages you will find an introduction to LTV and candid photographs of some of our key people in action. In effect, this annual report is a salute to the dedication of the thousands of men and women who, as our employees, contributed to the success of LTV in the best traditions of the free enterprise system. Equally important are our customers — military, space agency and civilian — who have given us their vote of confidence by buying LTV products and services. We will continue to provide these valued customers with real value for their dollars — reliable, quality products at minimum cost. Certainly, we also wish to thank each of you, as stockholders, for your continued loyalty and support.

March 5, 1965

 **James J. Ling**
Chairman of the Board
and Chief Executive Officer

 **Clyde Skeen**
President

FINANCIAL HIGHLIGHTS

FOR THE YEAR ENDED DECEMBER 31:

	1964	1963
Net sales	\$322,859,402	\$329,001,855
Earnings before taxes	9,024,031	8,392,537 ⁽¹⁾
Net earnings after taxes	4,903,597	6,186,809**
Net earnings per share of common stock*	2.31	2.12**
Dividends paid per share of common stock50	0.125

AT YEAR END:

	1964	1963
Net working capital	\$ 35,506,930	\$ 38,118,628
Short-term borrowings	21,700,000	26,800,000
Long-term debt	37,012,401	34,591,553
Stockholders' equity	28,562,150	32,861,815
Common shares outstanding	1,849,982	2,824,772

⁽¹⁾ As restated.

*Based on shares outstanding at year end and after allowance for dividends on preferred stock.

**Earnings after tax are affected by application of remaining tax loss carry-forward from 1961. Had earnings been taxed at same effective rates as for 1964, the 1963 earnings per common share would have been \$1.54.

and our horizon is never at our elbow.

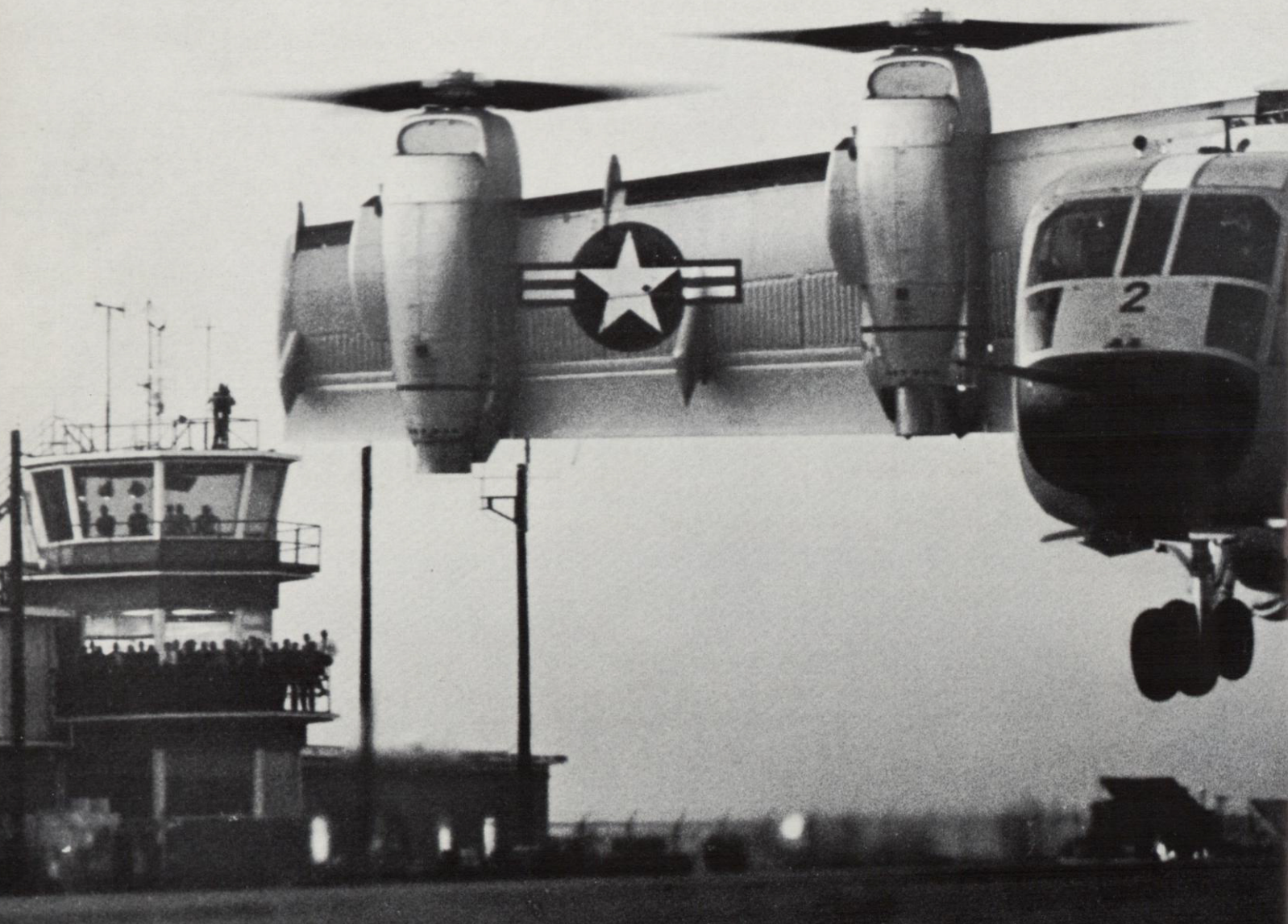
The defense industry is a tough business. It should be — for America must buy its defense with prudent cost-consciousness through our system of private enterprise competition. For the company that can endure the aggressive competition and meet the challenges with intelligence, foresight and a fiercely competitive spirit, it is a good business and we are proud to be a vital part of it.

True, profit percentages are small, by any measure. Risks are often great. Fluctuations are seldom predictable, and often violent. Technological changes come swiftly, with devastating effect on the status quo. Companies which succeed must be alert and ready to react swiftly to new conditions.

A U. S. senator said last year, “. . . The doors of the Pentagon are getting narrower. Thousands of contractors are going to get in because they are going to fight just as hard as they can, but thousands are not going to make it.”

LTV, paradoxically, has found the narrower doors a welcome opportunity. It has done its homework — anticipating a concerted government cost-reduction drive by some two years and adjusting its technological approach to take advantage of a rising portion of the market, while abandoning unprofitable operations that cluttered its halls. Today, LTV's operating units are in good trim and Project Redeployment should give the subsidiaries increased flexibility and strength needed to deal with the rigorous environment.

The powerful, turboprop aircraft seen here rising from the ground like a great anti-gravity machine is perhaps symbolic of our place in defense business. It is a prototype military transport, designed for the three major

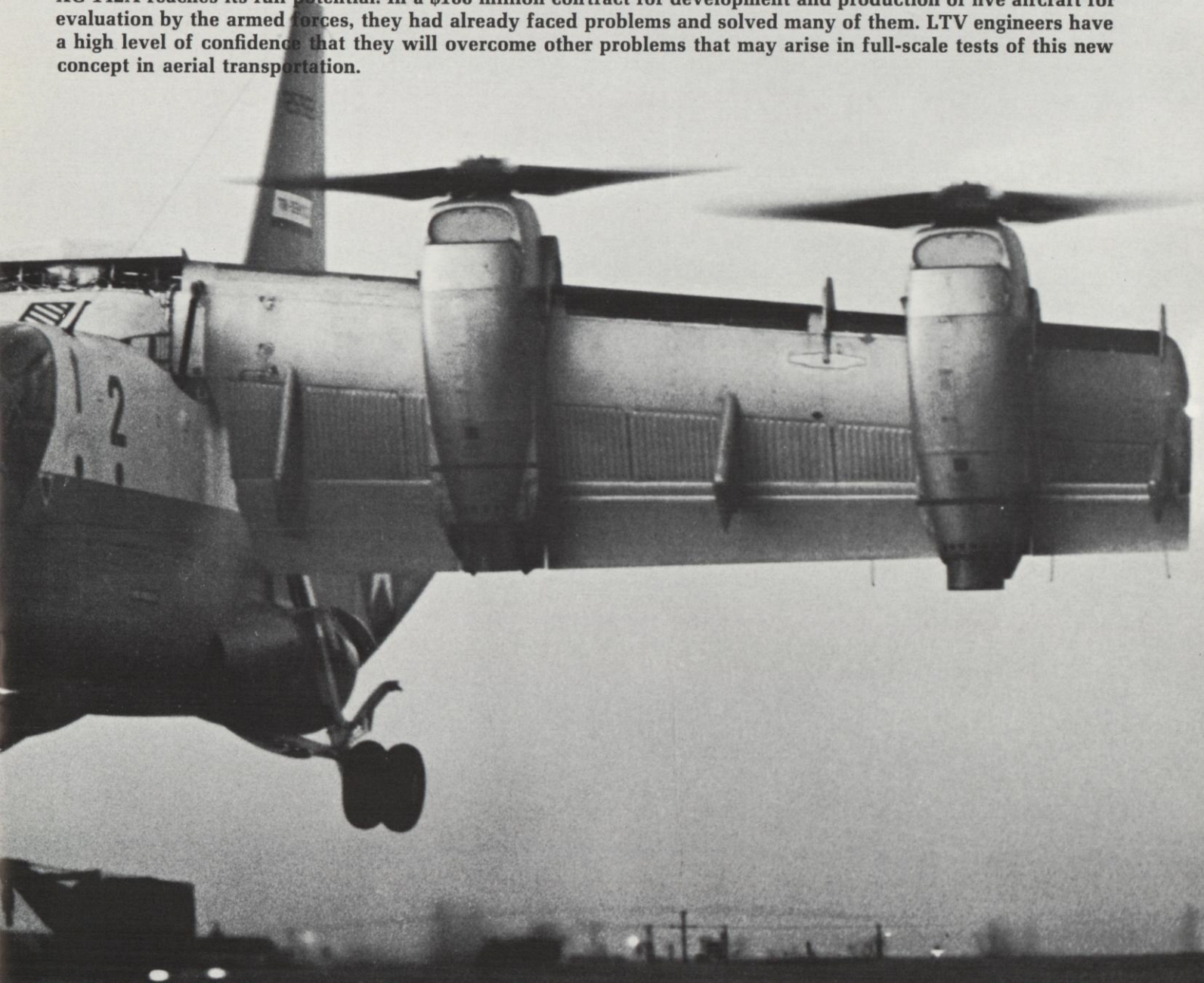


services, ready to bore through the sky at a maximum speed of more than 400 miles an hour with 32 fully-equipped combat troops aboard. It is adaptable and flexible. It had just taken off vertically from the ground like a giant helicopter, and later landed with no more forward roll than a giant bird.

On February 4, 1965, at the Dallas Naval Air Station, the public saw a milestone in aviation history. Not one, but two XC-142A's performed perfectly for the spectators. Test Pilots John Konrad, Stuart Madison, John Omgig and Robert Rostine, manifesting the confidence that is developing in this newest and largest of the nation's V/STOL (vertical and short take-off and landing) aircraft, did not pamper their planes. Demonstrating a commanding versatility, the two aircraft took off and landed vertically, hovered a few feet off the ground for minutes at a time, cruised blithely by the crowd at more than 250 miles an hour in level flight, then floated by in lazy circles executed at a hard-to-believe 35 miles an hour.

A shock-wave of excitement and pride swept through the crowd of 600 on-lookers as they realized they were witnessing a key step in aviation history.

It was a great day for LTV and particularly for Division Manager J. R. Clark, for the program director, his engineers and the flight test crews. But they, better than anyone else, know that much hard work remains before the XC-142A reaches its full potential. In a \$100 million contract for development and production of five aircraft for evaluation by the armed forces, they had already faced problems and solved many of them. LTV engineers have a high level of confidence that they will overcome other problems that may arise in full-scale tests of this new concept in aerial transportation.



Just a few hundred yards from where the XC-142A was demonstrating the capability of changing military close-support logistics, as well as point-to-point civilian transportation concepts, stands a mockup of the A-7A light attack airplane. Being developed in LTV's huge Dallas aerospace facility, the A-7A is one of this nation's two new military aircraft programs currently scheduled for full production.

A formidable array of bombs available on its wings, the A-7A will be one of this country's prime answers to the sinister threat of limited wars and the demands they impose for superior, low-cost tactical weapons that can deliver conventional as well as nuclear blows to any enemy — in any kind of conflict.

The A-7A, scheduled to make its maiden flight in 1965, was designed by a crack crew of engineers who also developed the famed Navy Crusader fighter. The A-7A design beat out some of the toughest competition in the aerospace industry. The contract, totaling an initial \$100 million, is fixed price. Rewards are commensurate with risks and depend upon superior performance. This is as it should be.

No program of this type could be in better hands. J. R. Clark, division general manager, was a key man in

development of both the famed Vought Corsair and Crusader fighters, which made Navy and Marine Corps history. Sol Love, program director, has a team of experienced engineers, technical and production people unexcelled in the industry in the realm of tactical aircraft. There is little doubt these men will meet the demands placed upon them. Looking toward a production life similar to that of the Crusader — more than 1,000 of which rolled off the production line—they regard initial orders for the hard-hitting attack plane as only the beginning.

The famed Crusader, too, soon will increase activity on the production line. The Navy has contracted with LTV to modernize 53 RF-8A Crusaders to expand their reconnaissance capabilities and extend a Navy service life that already has spanned action in the world's trouble spots, including Cuba, Laos, Gulf of Tonkin and North Viet Nam.

Confidence and competitive spirit are scarcely a monopoly of the aeronautics-oriented unit of the company. This feeling persists throughout LTV's personnel, whether their project be in Texas, Michigan, California, Europe, Oklahoma, Hawaii, Florida or the Far East. It is this pride of accomplishment which has welded LTV's nearly 17,000 em-

ployees into a successful company working toward a common goal.

The Astronautics Division, now on solid ground in its reliability program, proudly chalked "success" on numerous Scout launches in 1964. The solid-propellant space vehicle orbited nine satellites, including British and Italian satellites, and three Explorer experiments, two of these on one mission. It also twice provided the 28,000-feet-per-second speeds to test Apollo materials under atmosphere re-entry conditions. In a recent milestone operation at Wallops Island, Va., the Italian Commission for Space Research used the Scout to place in orbit the San Marco satellite. This project marked the first time in the NASA program that a satellite operation was conducted by a team of foreign nationals. It typifies the growing international interest in Scout by Italy, the United Kingdom and France.

Functioning under its new general manager, Dr. G. M. Monroe, the Astronautics Division made tremendous gains in reliability; instituted an employee motivation program that helped bring this division to the forefront among LTV's highest-morale units; gained a contract for a space mission simulator to be used by America's astronauts at the

NASA Manned Spacecraft Center in Houston; won contracts for manned and remotely-controlled space maneuvering units, and continued production of the huge Saturn fuel tanks which make up the bulk of the first stage of this nation's largest space launch vehicle.

LTV Temco Aerosystems Division

is another unit which had its share of accomplishments. During 1964 it continued to demonstrate a remarkable ability to compete and grow in the security-cloaked airborne electronics sphere of the defense industry. Last September, it demonstrated this competence by unveiling a completely new airborne war room, designed, built and delivered to the Air Force in just 98 days. This electronic complex, called the ABCCC (airborne battlefield command and control center) makes it possible for a military commander and his staff to control combat operations from the air or the ground on a "see-it-for-yourself" communications network.

Produced under a \$2,400,000 contract, the unique ABCCC is currently under test at Eglin Air Force Base and the outlook for follow-on systems appears very promising indeed. Coupled with reconnaissance systems, it can give a battle

commander a continuous "live" picture of both the enemy and his own forces at work.

Under the leadership of Fred Buehring, division general manager, LTV Temco Aerosystems has made steady progress in reconnaissance and surveillance systems. The division now has developed a series of proprietary systems and has a core of recognized technical specialists with a proven record of swift, intelligent response to rapid changes in tactical needs. This flexibility, based upon extensive experience, is what is needed for success in today's variable defense market.

LTV Ling Electronics, long a leader in vibration systems, has been steadily developing its technical and marketing strength while expanding its product lines. It demonstrated its success by taking the leadership in the super-power pulse modulator field. A \$2,249,303 contract from Stanford University early in 1964 calls for installation of 245 modulators for Stanford's two-mile-long atomic particle accelerator — largest such system in the world. The division, under direction of its president, Robert Lewis, also introduced new systems for vibration testing, shock testing and acoustical testing.

LTV Altec continued its successes in studio and home sound equipment, its "Giant Voice" sound warning systems for civilian defense and military use, and introduced newly-styled Gonset communicators, new solid-state amplifiers, microphones, speakers and other systems for the high fidelity, theater, public address, telephonic and related communication fields. Headed by Alvis Ward, president, Altec continues to be in the forefront in all types of quality sound systems.

Near Anthorn, England, on a chilly day last November, approximately 100 visitors to the little village near the Scottish border viewed a space age installation that stands against the sky like the woven web of a giant spider. This installation, too, was an LTV program.

The observers, representing the NATO command, the United Kingdom Ministry of Defense and Ministry of Works, the Post Office and various civic offices, had gathered to see the latest super-power NATO fleet communications station, for which LTV Continental Electronics, is the prime contractor. The Anthorn station, which beams communications to the Free World's naval units through highly reliable VLF (very low frequency) transmis-

sion, is distinguished by 13 towers soaring up to 748 feet above the terrain.

The Anthorn VLF station, designed and manufactured under a \$10.5 million contract for which Continental Electronics Systems, Inc., was given complete responsibility, is the latest evidence that Continental is the Free World's most experienced designer and builder of super-power transmitters. Headed by James O. Weldon, a pioneer in super-power equipment for both radio and radar systems, Continental for a decade has maintained supremacy in VLF systems and has built other powerful radio systems such as the Voice of America and the Voice of Polaris. Continental's commercial broadcasting equipment is used by many major stations in this country, the Middle East and Caribbean, and a new "Pro-Log" system of automated broadcasting was introduced to the market during the past year.

Still another signal achievement for LTV occurred on a snowy December day when LTV Michigan delivered to the U.S. Army the first prototype XM-561 cargo carrier. An outgrowth of the Gama Goat, which LTV developed on its own initiative and with its own funds, the XM-561 was so well received that the Army accepted the vehicle, first of 14 prototypes to result from

a \$5 million R&D contract, to be sent to the Aberdeen Proving Grounds, beginning a rigorous test and evaluation schedule.

An Army spokesman described the XM-561 as the "most versatile wheeled vehicle the Army has ever developed... it can be converted with modification kits into a weapons carrier, a firing platform for missiles or recoilless weapons, an ambulance, command post, fire direction center, mobile communications center, or literally a dozen special uses."

THE XM-561's predecessor, the Gama Goat, has been tested in Europe, the rice paddies of Asia and at other foreign locations, as well as at severe proving grounds in the U.S. It has accumulated the mileage equivalent of two trips around the world — not over smooth highways, but in forbidding terrain and over some of the roughest test courses ever devised. It is still going strong.

LTV displayed considerable initiative in developing this unique, six-wheeled vehicle for the Army. A full production contract would bring a spirited competition, and, to the winner, enviable rewards. The division's general manager, Robert Kiefer, and the program manager, Robert Franklin, are cautiously optimistic.

In the same Michigan division, a team headed by Charles Brunow is driving ahead in preparation for the first test firings of the Army's Lance battlefield missile. Technical problems of the kind that grip any new, advanced program have been overcome. Highly mobile and using pre-packaged storable liquid fuels, Lance was conceived as a replacement for the Honest John, the La-Crosse and possibly the Little John missile systems. Contracts on the program currently total approximately \$80 million.

There were other dramatic developments, both large scale and small. LTV's Research Center devised a miniaturized, super-sensitive heart microphone for use in the nation's space programs and in hospitals. The Military Electronics Division, under its new general manager, Dr. Harold Goldberg, built and delivered in only 65 days a combat display system that is being evaluated in simulated forward combat environments. Another display system will be "center stage" at NASA's Manned Spacecraft Center when our astronauts journey to the moon. The Military Electronics Division thrust vector control actuators and fluid injection valves are the guidance muscles for some of our major deterrent and space

booster systems such as Minuteman, Titan III and even more sophisticated systems now under development. What could be termed a "third-generation" guidance system is a proprietary product that is nearing maturity.

LTV University Division, under Haskel Blair, president, has long been a major sound system producer and now has received new military contracts for microphones and speaker systems. Under the general managership of John McGuyrt, LTV Range Systems Division moved into administrative services with a contract at NASA's Cape Kennedy-Merritt Island complex, and is also engaged in the electronic outfitting of special purpose ships and in target drone and range instrumentation work. In the Pacific, LTV's Honolulu-based unit, Kentron Hawaii, Ltd., under Adrian Perry, continues its major space tracking and electronic systems operations for the Western Test Range. Kentron has been particularly active, too, in the burgeoning anti-submarine warfare and oceanographic research fields.

Scientists in the LTV Research Center, meanwhile, are steadily probing into the technology of tomorrow. Their research reports concern such things as laser technolo-

gies, space radiation effects, closed ecological systems, synthesis of polymeric solids, electromagnetic interaction with matter, acoustics, fluid mechanics and advanced VTOL aerodynamics — terms that may send many persons to dictionaries, but which mean the basis of tomorrow's business. In addition to seeking new knowledge and probing into tomorrow's scientific frontiers, Research Center scientists contribute directly to the solution of immediate scientific problems encountered by the operating units.

With its three-dimensional diversification of customers, products and technologies, there are key developments almost daily within LTV. But it is beyond the limits of this introduction to chronicle all of the achievements, triumphs and disappointments of 1964.

In keeping with the traditional nature of industry, there were some disappointments in 1964 — such as the mothballing of the nuclear missile program. Brought along over the past six years by an outstanding team of industry and government scientists and engineers, the LASV (low altitude supersonic vehicle) was entering a promising period in its development stage and could certainly have been successfully flight tested within the relatively

near future. A vehicle many years ahead of its time, the LASV met with termination not through shortcomings but from considerations which had nothing to do with the technical capability of the agencies working on the program.

Disappointing as was the termination of LASV, technology developed in the program will serve LTV well in programs yet to come. And, at least one development in the program promises to serve as a springboard to significant new products within the company's family of operating units.

The achievements in 1964, however, far outnumbered the disappointments. And that is the scale by which success is weighed in any enterprise. Behind these successes stands the energy, the purpose, dedication, flexibility and applied intelligence of people — the heart and soul of any successful business.

The pages that follow represent an intimate portrait of people in action. The pictures are primarily of management at work in the intense atmosphere that pervades a modern-day, defense-oriented company. The camera lens will take you through an unornamented and unposed behind-the-scenes look at the men who are shaping the future of **LTV**

OFFICERS

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Robert McCulloch

Chairman of the Executive Committee

Clyde Skeen

President

W. P. Thayer

Executive Vice President

R. C. Blaylock

Vice President and Technical Director

Forbes Mann

Vice President-Government and Foreign Relations

Fred Buehring

Vice President and General Manager,
LTV Temco Aerosystems Division

J. Russell Clark

Vice President and General Manager,
LTV Vought Aeronautics Division

Richard J. Flynn

Vice President and Executive Vice President,
LTV Continental Electronics Division

D. G. Gilmore

Vice President and Operations Manager,
LTV Vought Aeronautics Division

Dr. Harold Goldberg

Vice President and General Manager,
LTV Military Electronics Division

Robert Kiefer

Vice President and General Manager,
LTV Michigan Division

James O. Weldon

Vice President and General Manager,
LTV Continental Electronics Division

Harry E. Kay

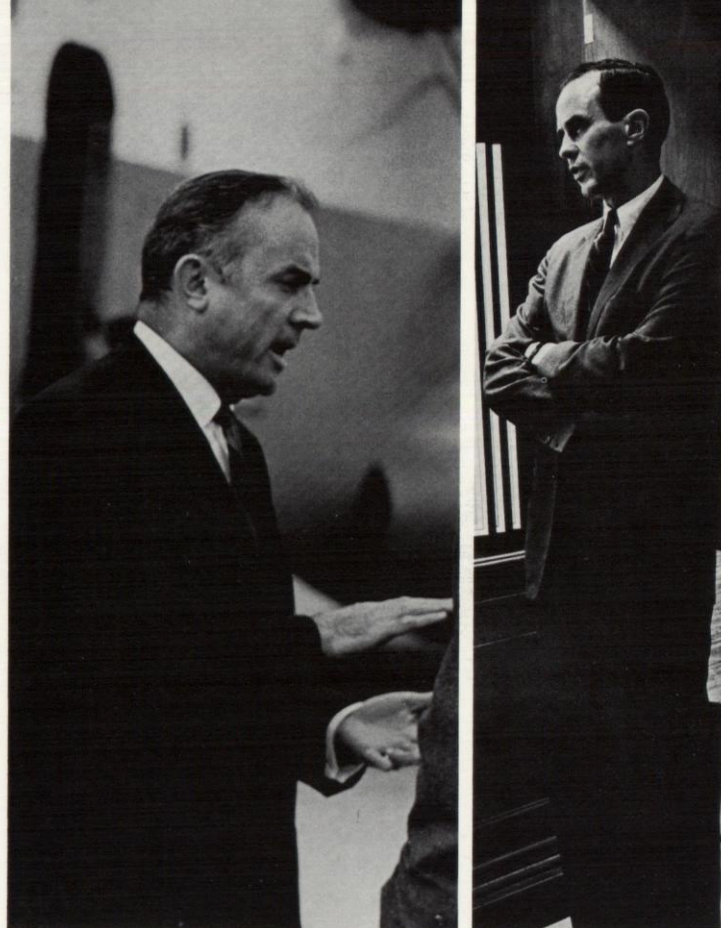
Secretary and General Counsel

Bernard L. Brown

Treasurer

E. J. Tanner

Controller



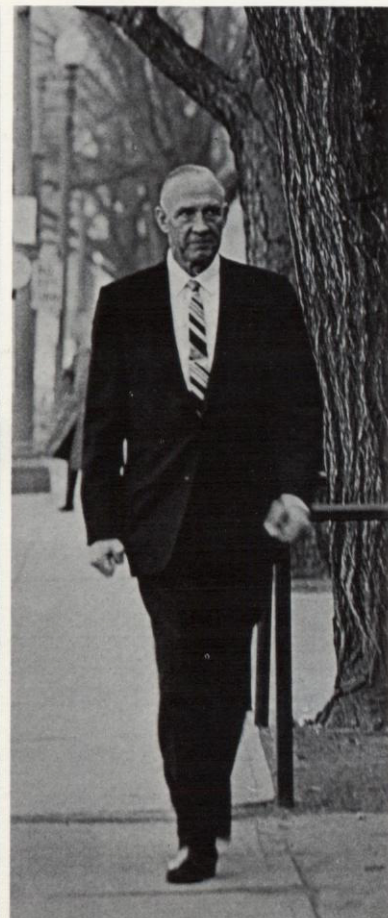
W. P. Thayer
Executive Vice
President

William H. Osborn, Jr.
Partner, Lehman
Brothers
New York, New York

DIRECTORS

Clyde Skeen
President

James O. Weldon
Vice President and General
Manager LTV Continental
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Greatamerica Corporation
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Director of the Office of
Research Services, South-
ern Methodist University
Dallas, Texas

Robert B. Gilmore
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and MacNaughton
Dallas, Texas

James J. Ling
Chairman of the Board and
Chief Executive Officer





LTV's senior executives log tens of thousands of miles in travel annually as they perform many interrelated and inseparable management functions. President Clyde Skeen, left, met by Robert C. Lewis, president of Ling Electronics, deplanes for an Anaheim meeting, where he and other operating executives will "war-game" plans and operations for maximum effectiveness.



Development of the Navy's newest aircraft, the light attack A-7A, is LTV's largest single program at present. Board Chairman and Chief Executive Officer James J. Ling, examining mock-up, listens attentively to progress report from Vice President Dan G. Gilmore. First flight of A-7A is scheduled for this fall. The A-7A is one of two aircraft programs cited by President Johnson this year as being slated for "full scale procurement." Current contracts total approximately \$100 million.



James O. Weldon, America's first super-power electronics communications engineer and Vice President and General Manager of LTV Continental Electronics Division, holds the attention of experts at the Army's huge radio installation in Brookridge, Va., as he explains the way a high-performance LTV Continental Electronics transmitter sends teletype messages to Europe.

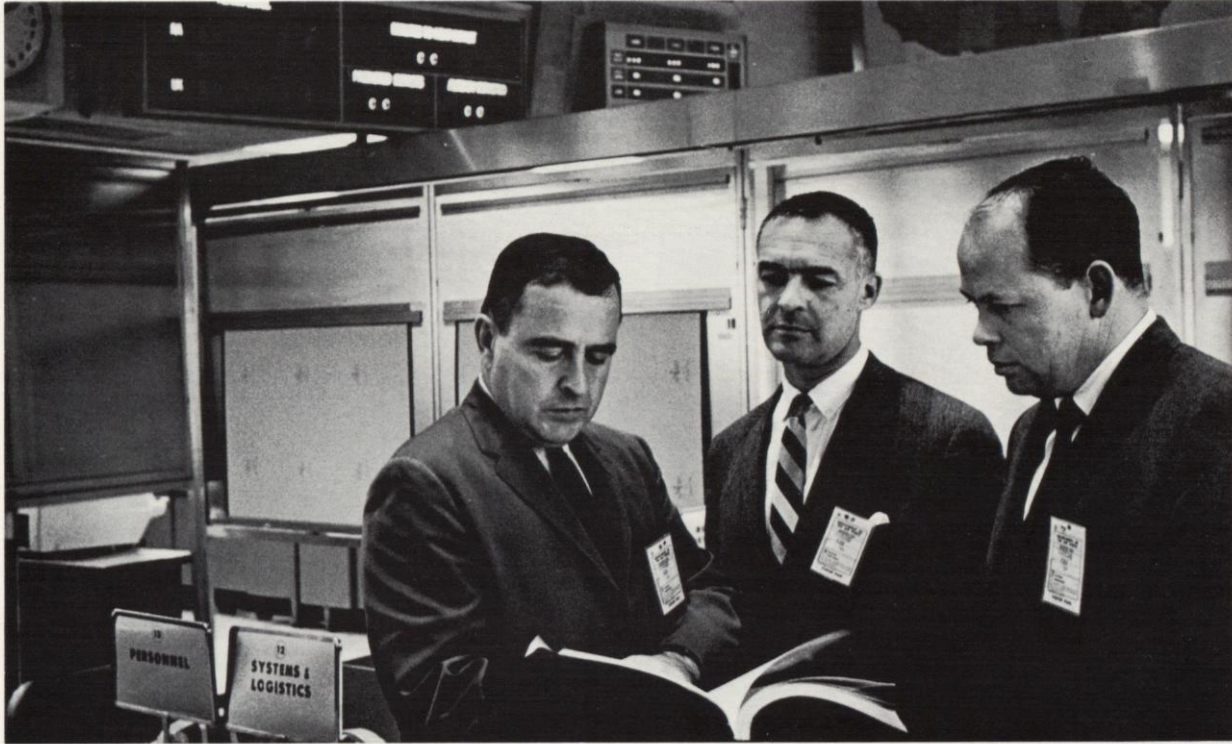
Knowledge is the great sun of the universe,

right

Keeping abreast of technological innovations is a day-to-day "must" for LTV management. Vice President-Technical Director Raymond C. Blaylock, right, gets a laboratory progress report on new devices to detect and analyze nuclear radiation in space.

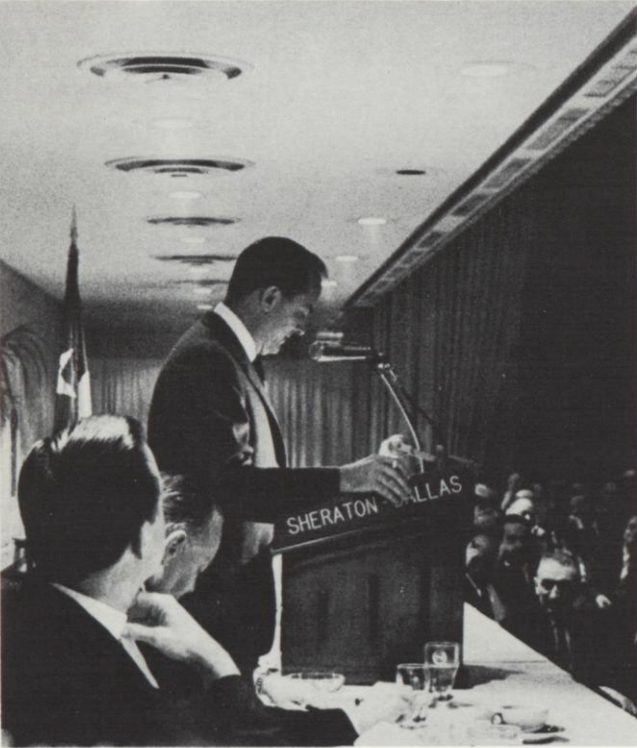


LTV's on-the-scene representatives in Washington maintain a vital communications link with government defense planners. Three of these representatives, Vice President Forbes Mann, John Allyn, and Otis Brooks (left to right), visit the U. S. Air Force command post in the Pentagon to determine new requirements for electronic computer-linked display systems, for which LTV will be a strong bidder.



A company's reputation in the world at large can be no better than the opinion of its nearest neighbors. Last year, LTV invited small groups of Dallas area community leaders to visit the Corporation in its new LTV Tower offices. These community leaders listened to a briefing by top officers on LTV's contribution to the defense industry, and to the local economy. Many later wrote letters expressing a new understanding and appreciation of LTV. (Also see cover photograph.)

All members of top management address key employee groups periodically. Here, Executive Vice President Paul Thayer reports to the LTV Vought Aeronautics Management Club. This communications link down through the organization plays an important role in employee morale and motivation and helps keep supervisors informed.

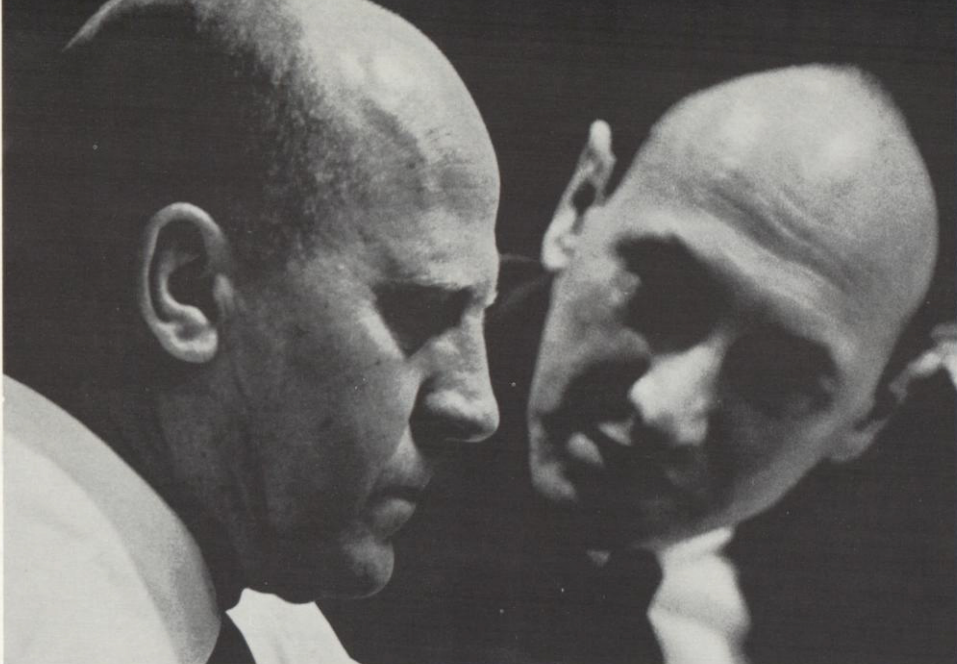


LTV Astronautics Project Fire Velocity Package during laboratory testing oscillates faster than the human eye can blink. Viewing the test is Dr. Harold Goldberg, right, vice president and general manager of LTV Military Electronics.



A major defense contractor is charged with responsibility for reporting important developments to the tax-paying public. Here, press and public watch the unveiling of the exciting XM-561, against the grey background of a chilly December day in Michigan. An Army spokesman has said the XM-561 is the "most versatile wheeled vehicle the Army has ever developed." First one delivered now is at Aberdeen Proving Grounds, where it will go through varied tests over rugged terrain.





facing page

Planning is the parent of the A-7A. When many major companies in the industry were thinking strategic aircraft, LTV foresaw brighter opportunities in the tactical weapon system. As a result, the company can anticipate a solid future for the versatile plane that can fly twice the distance with twice the bomb load of any Navy light attack aircraft. Planning of this type, together with the engineering and managerial talents of men like Aeronautics Vice President J. R. Clark, right, Program Director Sol Love and Deputy Program Director E. F. Cvetko, left, promises busy production lines for the A-7A.

The Lance battlefield missile faces initial tests this spring. Michigan Division Vice President Robert Kiefer, left, and Lance Program Director Charles L. Brunow discuss plans.



LTV's Lance missile already is familiar to the Army troops who will participate in the testing and early training programs. A third generation battlefield weapon system, Lance incorporates many firsts in technology. Current Lance contracts total approximately \$80 million.

*the more
communicated,
the more
abundant grows.*



Guided by Dr. John Hilliard, right, LTV Western Research sets the pace in the science of acoustics, an accomplishment acknowledged by substantial research contracts.



Compiling stockholders' reports is an important task meriting the combined efforts of company's top fiscal, legal and public relations executives. From left: Public Relations Director John W. Johnson, Treasurer B. L. Brown, Associate General Counsel Dan Burney and Secretary and General Counsel Harry Kay.

To the accompaniment of the excited buzz of the crowd, the incredible XC-142A taxis out for a vertical take-off, 360-degree yaw hover flight, and a jaunt backward in the air. One veteran aviation buff remarked that nippy February day, "America has at last got something to be really proud of in the V/STOL field."

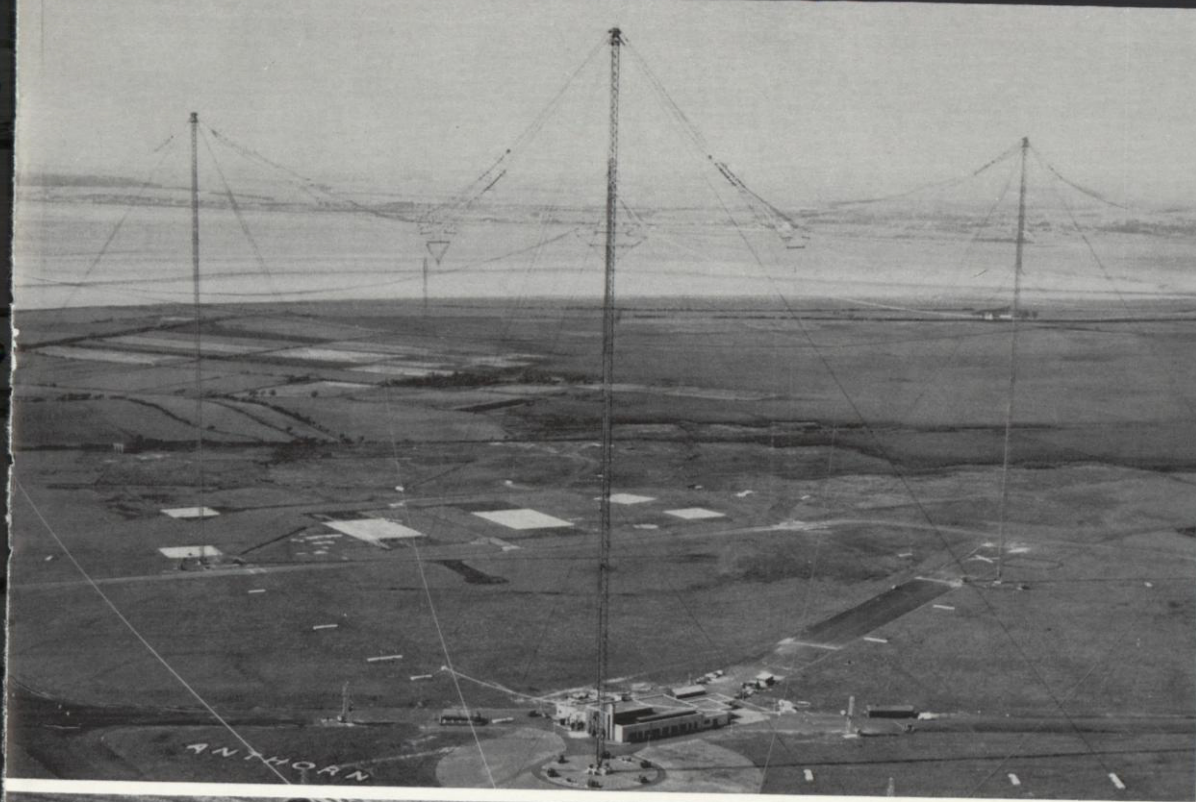


The wide scope of Range Systems Division's major activities — from electronic outfitting of special purpose ships and manning of range tracking systems to providing administration and management services for NASA at its Kennedy Space Center Merritt Island facility — comes under review of division and corporate planners as Division General Manager John McGuyrt (second from right) conducts a plans and operations meeting in the LTV Tower. The division received a \$21.9 million contract early this year for the electronic outfitting of two range/tracking ships to be used in the reentry phase of the lunar Apollo mission.

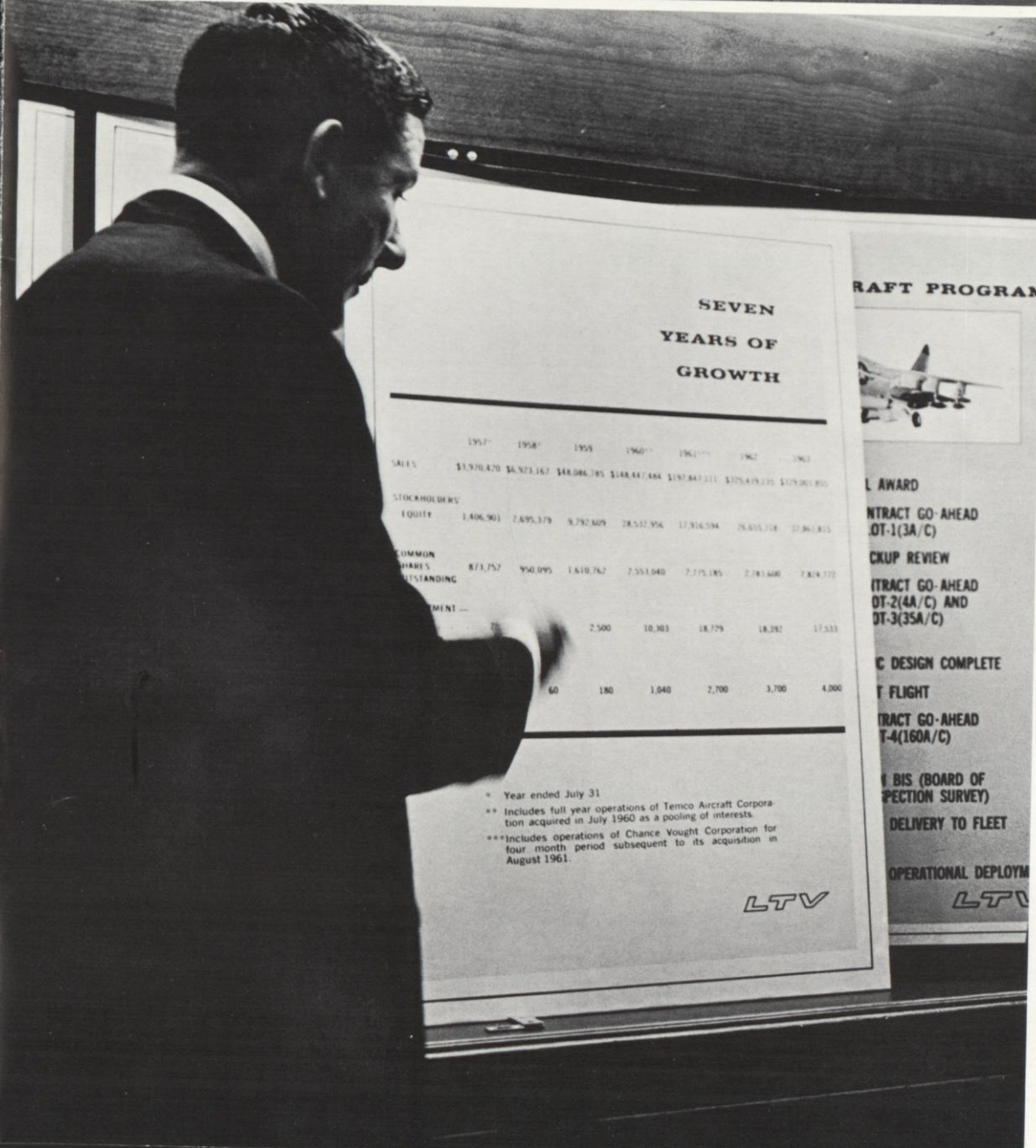


Newsmen crowd close to record the words and facial reactions of, left to right, Test Pilots Stuart Madison, John Konrad, John Omvig, and Robert Rostine during the debriefing following the first public flight of two XC-142A V/STOL transports in early February. All national television networks and other news media covered the event in which the XC-142A took off vertically, hovered, then flew away.





This NATO VLF installation rises high above Anthorn, England. Designed and built by LTV Continental Electronics Systems, Inc., it is one of numerous such complexes the world over, including the Mediterranean area, Australia, and Hawaii.



Long-range planning assures that each LTV program will seek maximum potential. James J. Ling, chairman of the board and chief executive officer, compares a seven-year growth chart with plans for the A-7A program.

SEVEN YEARS OF GROWTH

	1957*	1958*	1959	1960**	1961***	1962	1963
SALES	\$1,970,470	\$6,973,167	\$48,086,785	\$148,847,086	\$197,847,311	\$375,419,330	\$379,303,800
STOCKHOLDERS' EQUITY	1,406,901	2,695,379	9,792,609	28,537,956	17,916,594	26,633,718	37,261,813
COMMON SHARES OUTSTANDING	873,757	950,095	1,610,762	2,551,040	2,775,185	2,781,600	2,824,732
EMPLOYMENT	75	75	2,500	10,303	18,779	18,392	17,533

* Year ended July 31
 ** Includes full year operations of Temco Aircraft Corporation acquired in July 1960 as a pooling of interests.
 *** Includes operations of Chance Vought Corporation for four month period subsequent to its acquisition in August 1961.

LTV

RAFT PROGRAM



AWARD

CONTRACT GO-AHEAD
 OT-1(3A/C)

CKUP REVIEW

TRACT GO-AHEAD
 OT-2(4A/C) AND
 OT-3(35A/C)

C DESIGN COMPLETE

T FLIGHT

TRACT GO-AHEAD
 T-4(160A/C)

BIS (BOARD OF PECTION SURVEY)

DELIVERY TO FLEET

OPERATIONAL DEPLOYM

LTV

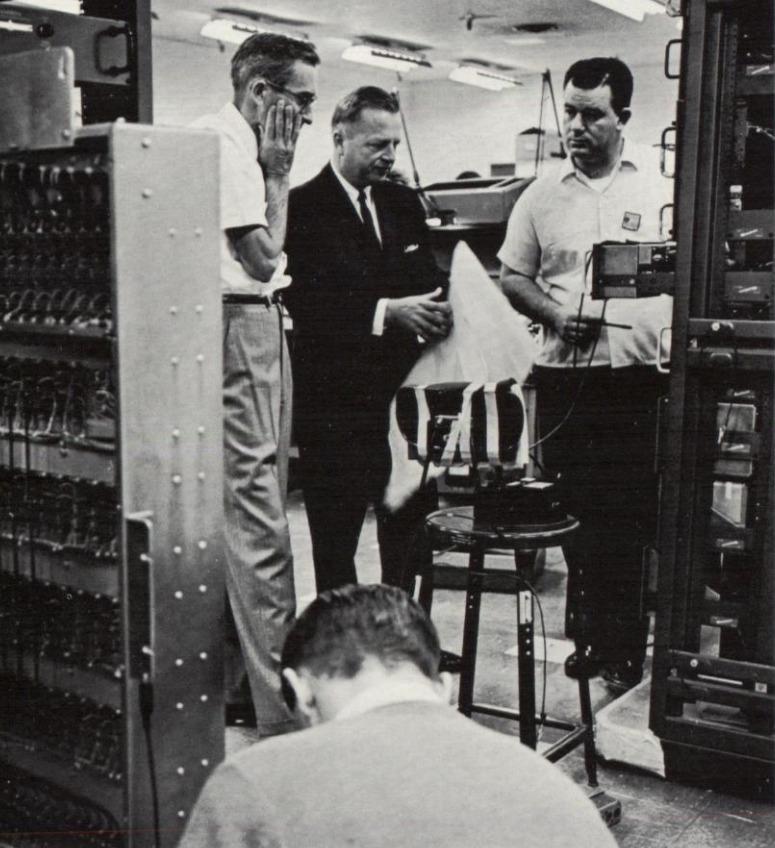




Science carries us into zones of space

At LTV, research and development is a way of life. The company ranks among the top group of defense companies on the basis of R&D expenditures as a percentage of sales. Research made possible development of the world's largest V/STOL aircraft; thrust vector systems to stabilize and control powerful space vehicles; the highest powered audio amplifier ever manufactured in the Free World, and myriad other accomplishments which set LTV apart. Here, through the camera lens, are quick glimpses of a few of the many research activities which help assure the company's competitive position.

A computer breadboard for a promising new aircraft automatic control system captures the attention of Dr. Harold Goldberg, right, Military Electronics vice president and general manager, widely-known researcher and holder of numerous patents. He consults with, from left, Chief Engineer Joseph Simmons, Assistant General Manager Harry Shaw and Chief Staff Engineer W. G. Redmond. The system, which increases reliability and reduces cost and weight, is one of the many fascinating projects at MED, where interest areas include missile guidance equipment and systems, thrust vector and control devices, test and checkout equipment, microminiature assemblies, high speed projectors and visual display command centers and advanced radar systems.

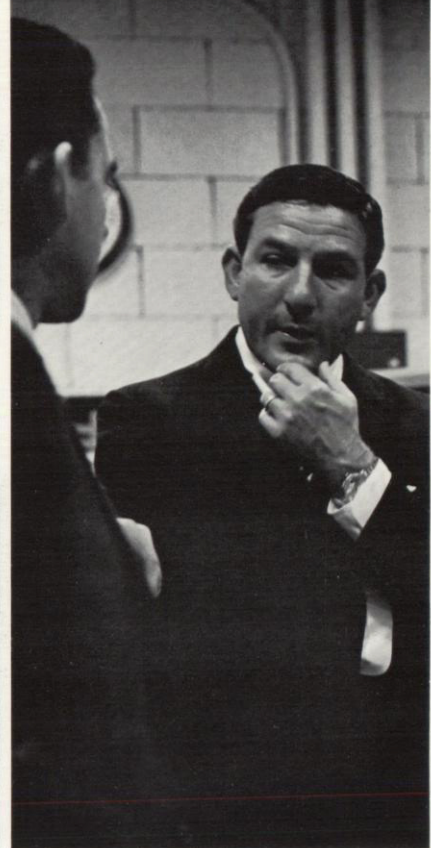


Laboratory tests of systems and components simulate the harsh environment space vehicles must conquer. Robert C. Lewis, president of LTV Ling Electronics, visits one of the shops where new equipment for environmental testing is developed, as were the pulse modulators for the Stanford atomic particle linear accelerator, largest in the world.

LTV University produces more public address loudspeakers than any other firm, and, now established in its new Oklahoma City facility, is developing new products such as siren sound systems. President Haskell Blair, second from left, sells to a customer, back to camera, while inspecting the assembly line.



Aerodynamic flow problems have plagued aviation since its beginning. The boundary layer tube is one of the tools with which LTV's Research Center attacks these problems. Vice President R. C. Blaylock, right, Henry B. Gibbons, associate director, and Dr. John Harkness, left, watch the LTV-designed research unit.

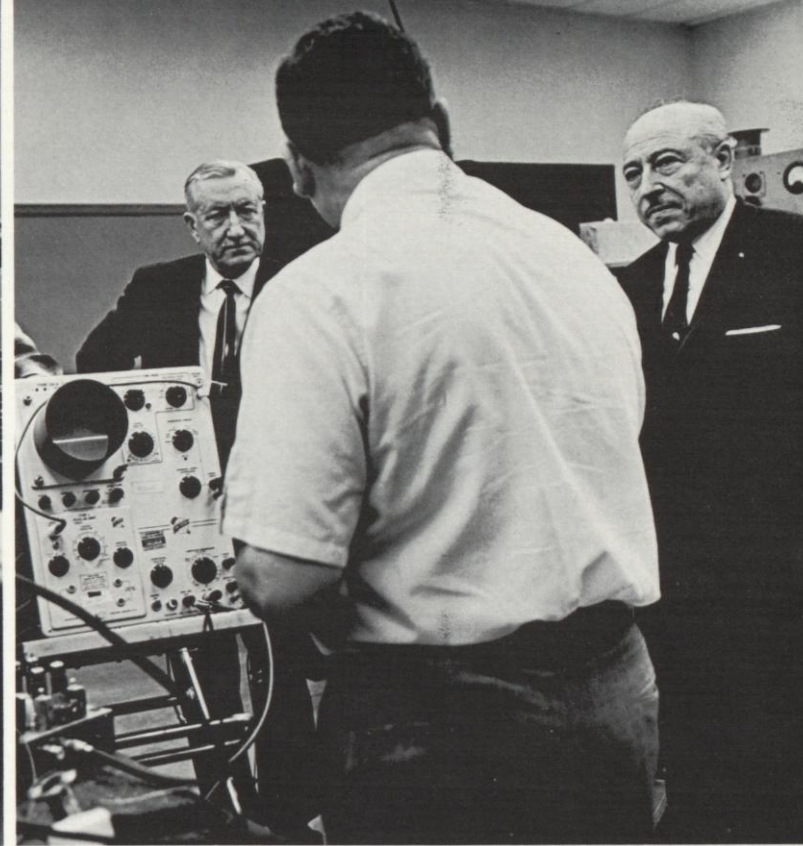


A dynamic research staff has made possible LTV development of unique spacecraft measurement devices. Here, Board Chairman James J. Ling listens to a report from Scientist James Johnson. Careful allocation of R&D funds is a top management function.





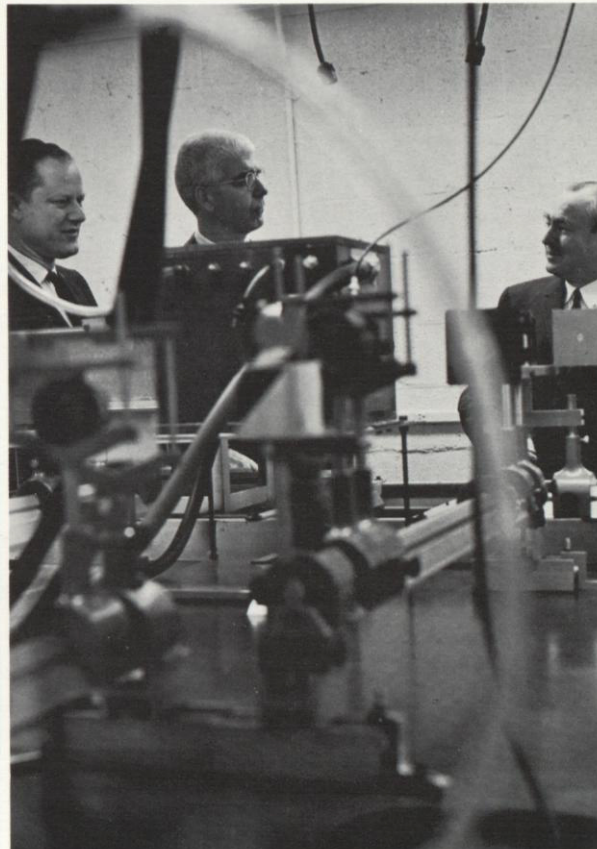
When the astronaut steps out of his orbiting spacecraft, he is scheduled to do so wearing LTV's Modular Maneuvering Unit space pack. Maintaining LTV leadership in space maneuvering units are Astronautics General Manager Dr. Gerald M. Monroe, Program Manager Robert Lundberg, and Project Engineer James B. Griffin.



In the competitive world of sound systems, rivals respect the superiority of Altec. Under the guidance of President Alvin Ward, left, and Vice President A. Fiore, Altec leads in the field of hi-fi, theater, concert hall and stadium systems, and professional recording-broadcast equipment.

A missile is only as good as its various systems. Charles Brunow, Lance program director, works closely with his engineering staff to assure that the new Lance missile guidance unit will operate both dependably and reliably.

LTV research constantly explores new horizons for the laser. Experts like Vice President Ray Blaylock, right, Henry B. Gibbons, and Dr. Felix Fenter, work ceaselessly to evaluate and develop research programs that will mesh with and strengthen the company's objectives and plans for internal growth through scientific progress.





**U.S. ARMY
PATA TEST BED**

ACCESS

TOW RING

ACCESS

TOW RING

facing page

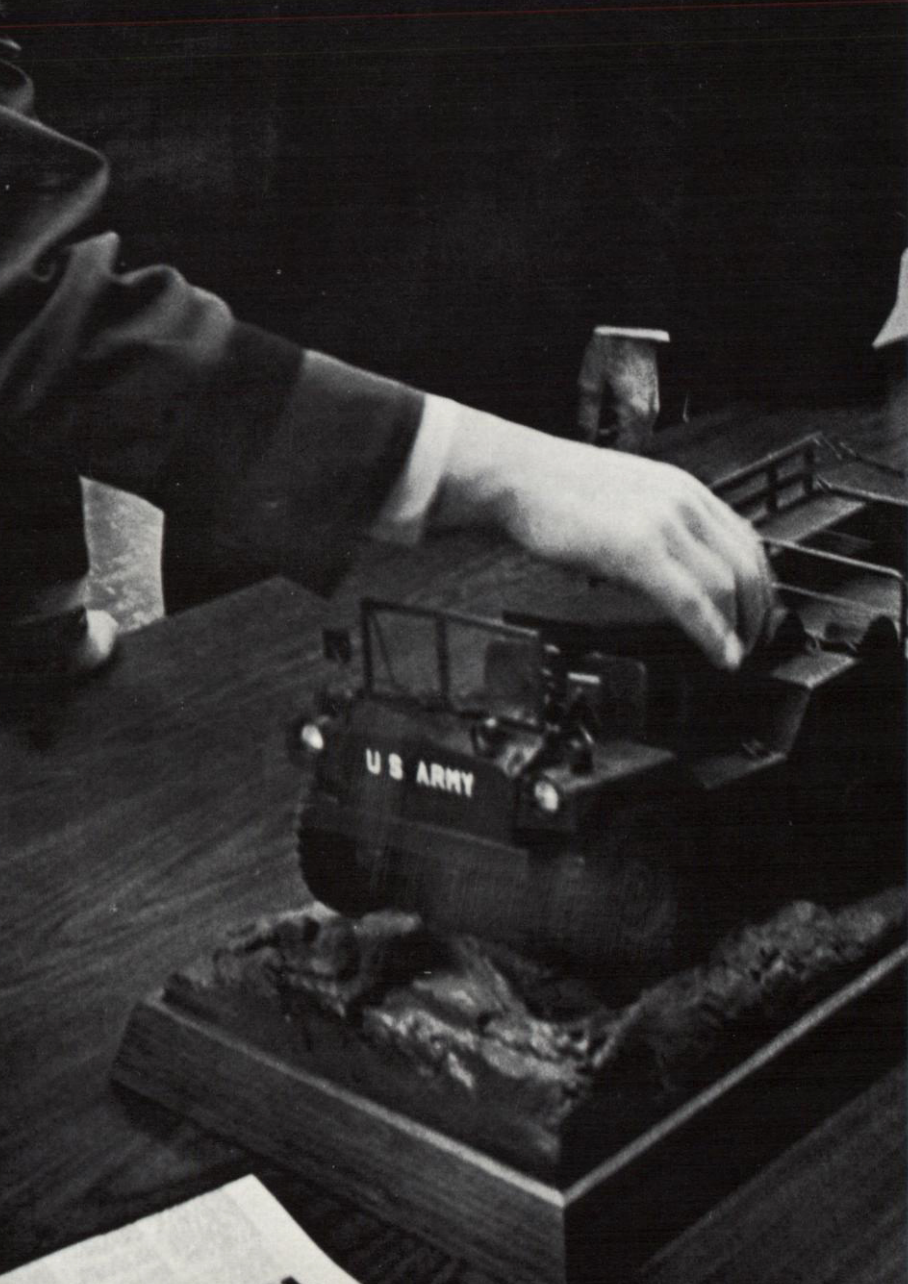
Military evaluators at Detroit watched Executive Vice President Paul Thayer, driving, LTV Michigan Vice President W. R. Kiefer (center), and XM-561 Program Manager C. B. Franklin demonstrate an LTV-developed transport vehicle. Named PATA, this low ground pressure tracked vehicle is designed to transport troops and cargo through snow, sand, marshes, or water. Senior executives strongly assist the marketing effort in the defense industry, where broad management considerations are aligned with technical excellence and price in the competitive awarding of contracts which provide the military with high quality, reliable products at low cost.



Three abreast, LTV Washington representatives are seen near a familiar setting — the Pentagon. Despite national spending readjustments, LTV remains among the leaders in winning R&D, tactical and electronics and communications contract awards. Men like Otis Brooks, John Allyn and Vice President Forbes Mann, left to right, helped LTV stay alert and competitive, anticipate national cost-reduction efforts by two years, plan its own future to coincide with the shift from strategic to tactical system emphasis, and adjust swiftly to new military requirements.



Actual hardware units aid in visualizing requirements for aircraft installations. LTV Aerosystems Vice President Fred Buehring, right, and D. L. Hearn bring them into play in a marketing plans meeting. Close engineering-marketing coordination helps keep LTV a leader in the field of developing and selling technical concepts.



left

Scale models often say what words can't. Brig. Gen. B. J. Hirshorn checks system which keeps XM-561 wheels in traction at all times. Watching are Executive Vice President Paul Thayer and Vice President W. R. Kiefer.

below

A NATO VLF installation in Scandinavia is the subject of discussion between LTV top management and representatives of Jan Staubo A/S, Oslo. LTV Continental Electronics has designed and fabricated the transmission equipment for all of the Free World's major VLF radio stations during the past decade.





Technical knowledge and sales know-how are equally important in planning marketing strategy for a specialized product, in this case the LTV Ling Electronics solid-state pulse modulator. Held at the LTV Altec facility in Anaheim, Calif., this conference is typical of many such meetings, where marketing plans to meet customer requirements are discussed.



far right above

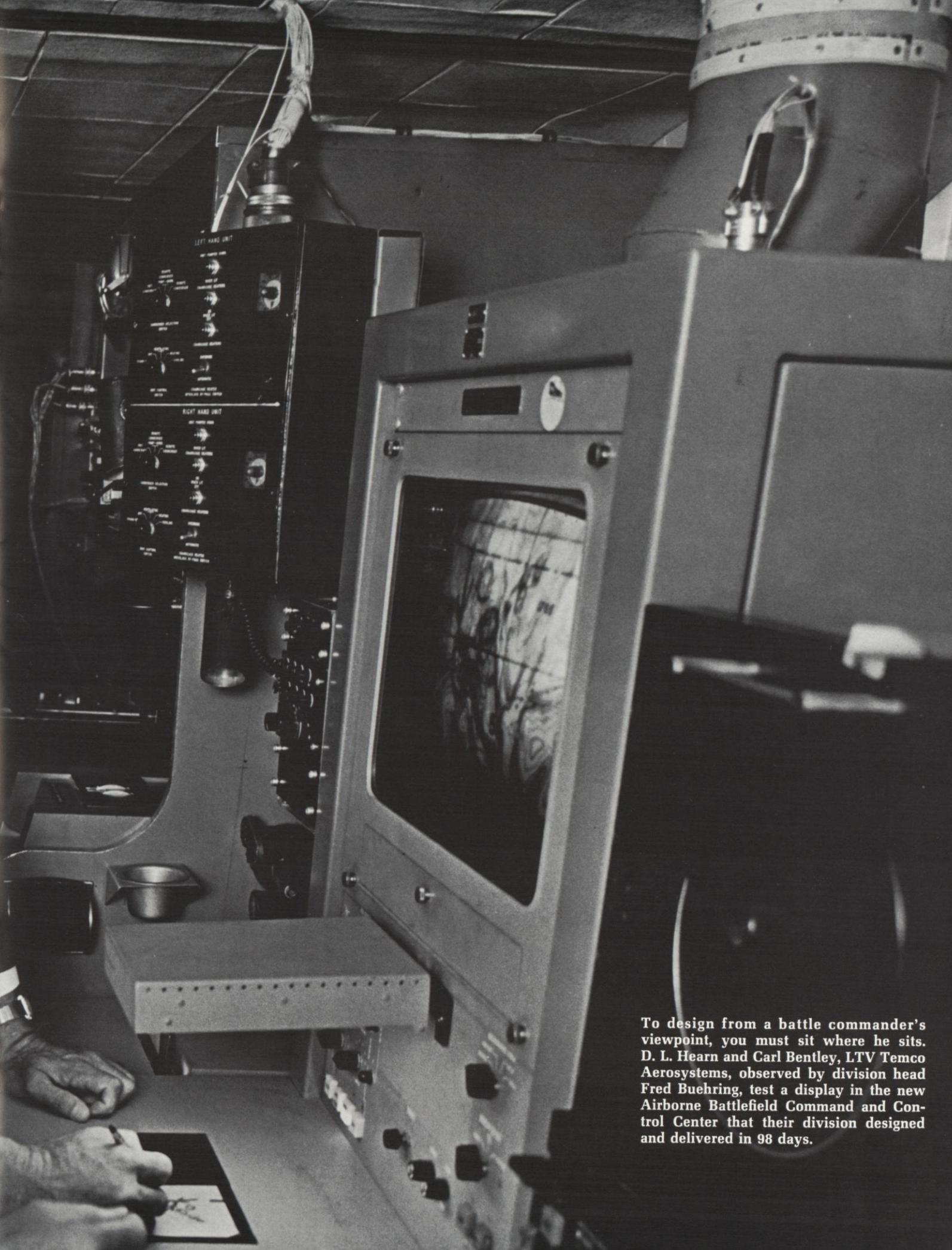
LTV Altec Vice President-Marketing H. S. Morris explains how high fidelity tuners operate to provide sound of highest quality.

right

Continental President James O. Weldon has built the nation's most experienced electronics engineering organization specializing in super-power transmission. Inventor-entrepreneur Weldon needs no notes as he details to two customer representatives both theory and operational experience of a super-power transmitter, the basis of long-range radio and radar.







To design from a battle commander's viewpoint, you must sit where he sits. D. L. Hearn and Carl Bentley, LTV Temco Aerosystems, observed by division head Fred Buehring, test a display in the new Airborne Battlefield Command and Control Center that their division designed and delivered in 98 days.

Measured care, alertness marked the atmosphere in the Wallops Island, Va., blockhouse as LTV's Milt Green, bending, Scout program director, talked with Italian scientists. Shortly after, this meticulous attention brought success and increased international recognition. Using the NASA Scout rocket built by LTV, Italy became the world's third nation to orbit its own satellite. Italy is one of several nations which have signed agreements for use of the Scout rocket.

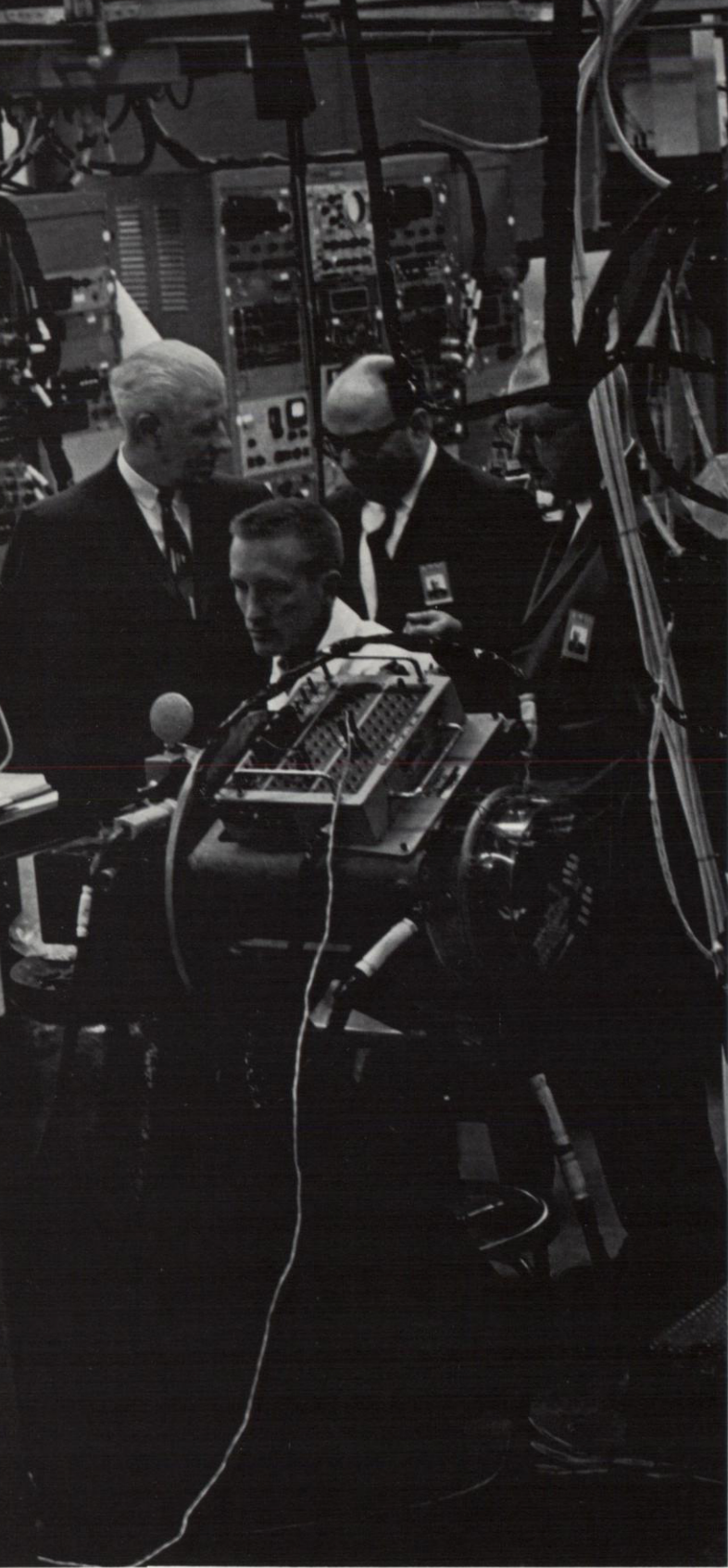


Electronics has pulled the assembly line out of the dust and off the floor. Dr. Harold Goldberg, left, Military Electronics Division general manager, watches a technician make microminiature assemblies beneath the lens of a microscope. They work in a clean room, where filtered air keeps the dust count lower than in any surgical operating room. Advanced techniques are scoring success for MED in instrumentation, communications, guidance and control and display.

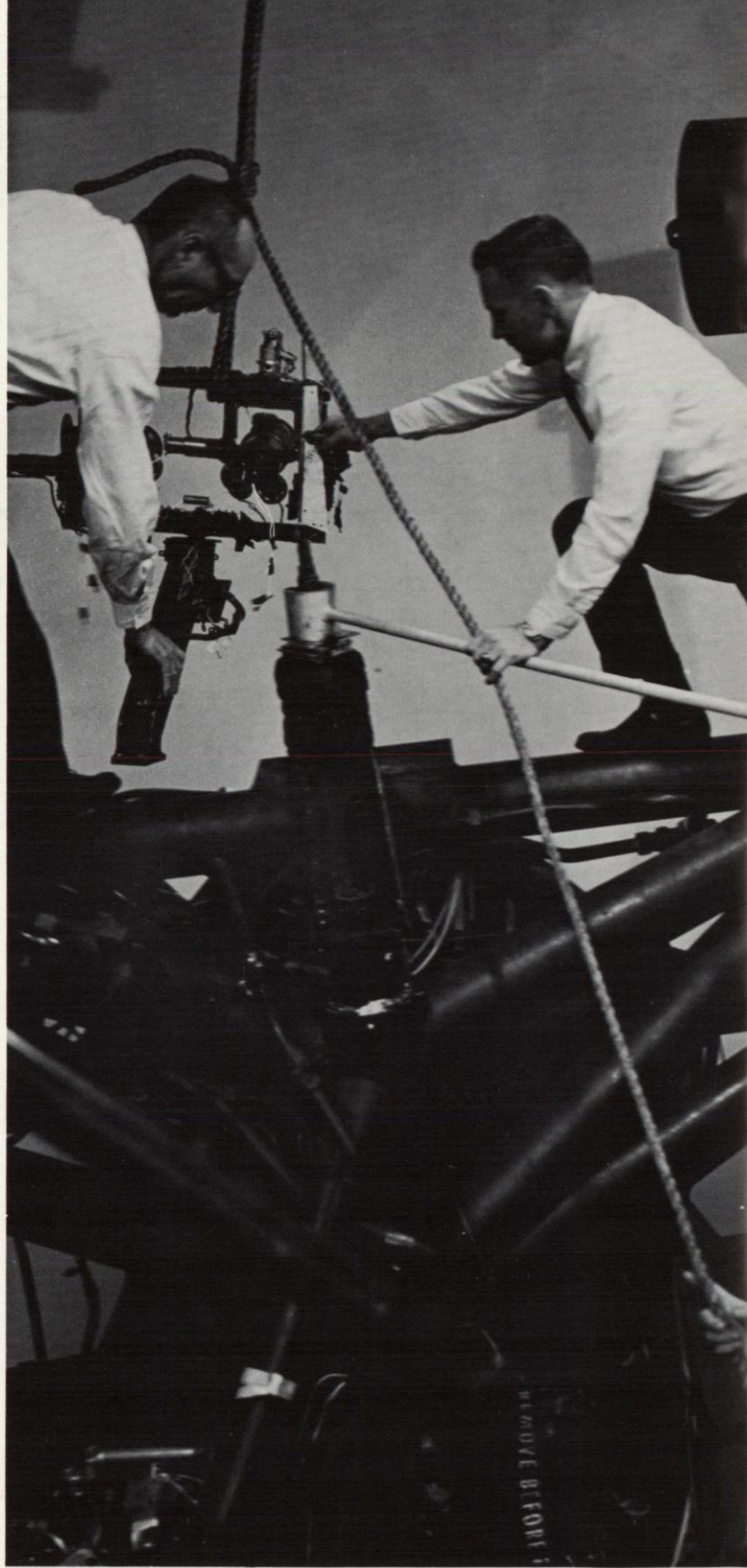
Performance implies high quality products, on-schedule delivery, and prices that give the greatest value for the lowest possible price. Charles Brunow, left, Lance program director, checks all three facets of performance in a visit to the production area of the Michigan facility, where the Lance missile is being developed by LTV engineers.



Quality is the first component in an Altec product. It has led to excellence in all lines: telephone repeaters, loudspeakers, microphones — the best in the field of professional sound pickup and reproduction. President Alvis Ward, left, helped found the company, and has led it forward from the early days of raw sound pioneering to the new frontiers of ever-refined technological advance in theater and studio equipment and in commercial sound reproduction systems.



In the plant he activated in 1945 to do aircraft subcontract work, Robert McCulloch — founder of Temco and industry-recognized production and quality authority — talks shop with Milt Green, Scout program director, center, and C. B. Lewis, right, quality control manager, during checkout of the NASA/DOD research rocket.



With an Argonaut's rope they rig an Astronaut's ship. Boyd Sherbet, left, and assistant prepare LTV Manned Space Flight Simulator for another mission. NASA Astronauts have flown in it regularly on lunar and other missions — preparing for actual flights of tomorrow. LTV has proved itself a leader in the field of space flight simulation.



In an off-hand gesture, the hand of LTV Continental Electronics Vice President Mark Bullock indicates graphically what his division builds better than anyone — super-power transmission equipment. Executive Vice President Richard Flynn, right, is division head when President Jim Weldon is traveling—on design-and-sell missions throughout the world. Continental has won every large VLF transmission station contract in the Free World during the past decade.



Bob Lewis, right, president, keeps the LTV Ling Electronics line of electrodynamic and acoustical environmental test systems out in front of the competition. Here, at the Anaheim facility, he checks on the progress of an automatic equalizer-analyzer, one of the newer developments in a full line of sophisticated test systems for the aerospace and electronics industry.





LTV's cost control program merited praise last year from military and other government agencies. Howard Lee (back to camera), cost reduction manager, outlines 1965 goals to Executive Vice President Paul Thayer, LTV Treasurer B. L. Brown, and J. R. Silverman, LTV Vought Aeronautics controller.



Adrian Perry, left, president of Kentron Hawaii, Ltd., has just arrived at the LTV Tower for discussions of an anti-submarine warfare research project with the University of Hawaii, related to the large ASW test installation the Navy soon will build in the Islands. He is met by George Cramer, corporate director of electronics.

Lunchtime makes for a relaxed exchange of ideas. In a typical informal lunchtime conference at Military Electronics Division are, from left, A. E. Wasserman, marketing director; J. H. Boucher, automatic controls programs director; Dr. Harold Goldberg, vice president and general manager; and Harry Shaw, assistant general manager.

As LTV President, Clyde Skeen is the top administrator of the corporate business units. Here, he prepares to enter the LTV Western Research Center in Anaheim, on one of his regular visits to operating units to discuss latest progress.



***Order and simplification
are the first steps
toward mastery***

facing page

The project under discussion is the XC-142A V/STOL transport — with large-scale drawings as the reference. Giving a problem their total attention are Dr. Walter J. Hesse, second from left, XC-142 program director, and Rodger Ringham, second from right, LTV Vought Aeronautics engineering director. This is typical of the endless attention to detail that leads to success on a complex project such as the XC-142A, world's largest V/STOL.



LING-TEMCO-VOUGHT, INC.

EIGHT YEARS OF PROGRESS

OPERATING RESULTS

	1964	1963	1962	1961*	1960**	1959	1958***	1957***
Sales	\$322,859,402	\$329,001,855	\$325,439,135	\$192,847,111	\$148,447,484	\$48,086,785	\$6,923,167	\$3,970,420
Earnings (loss)								
Before taxes	9,024,031	8,392,537 ⁽¹⁾	8,796,824	(14,526,897)	5,737,132	3,139,639	452,161	621,851
After taxes	4,903,597	6,186,809(A)	8,650,069(B)	(13,158,591)	3,051,172	1,866,466	227,161	308,485
Per common share****	2.31	2.12(A)	3.03(B)	(4.74)	1.20	1.13	0.21	0.35

FINANCIAL POSITION (at year end)

Net working capital..	\$ 35,506,930	\$ 38,118,628	\$ 46,268,154	\$ 36,030,530	\$ 22,558,484	\$ 7,760,736	\$ 874,820	\$1,109,859
Ratio of current assets to current liabilities	1.62	1.55	1.66	1.41	1.45	1.51	1.27	2.13
Notes payable to banks	\$ 21,700,000	\$ 26,800,000	\$ 39,000,000	\$ 48,600,000	\$ 29,340,000	\$ 7,200,988	\$1,526,860	\$ 106,551
Long-term debt	37,012,401	34,591,553	64,198,617	64,948,003	14,639,132	7,613,920	461,021	475,855
Stockholders' equity..	28,562,150	32,861,815	26,655,718	17,916,594	28,532,956	9,792,609	2,695,379	1,406,901

GENERAL (at year end)

Employment—total ..	16,513	17,533	18,392	18,729	10,303	2,500	800	280
Employment—engineers and scientists	4,750	4,000	3,700	2,700	1,040	180	60	35
Common shares outstanding	1,849,982	2,824,772	2,783,600	2,775,185	2,553,040	1,610,762	950,095	873,752
Common stockholders of record*****	11,886	16,428	17,795	18,713	18,838	12,000	5,353	2,563

*Includes operations of Chance Vought Corporation for four month period subsequent to its acquisition in August, 1961.

**Includes full year operations of Temco Aircraft Corporation acquired in July, 1960 as a pooling of interests.

***Year ended July 31.

****Based on shares outstanding at year-end and after giving effect to preferred dividends.

*****Does not include stockholders (approximately 5,500 at December 31, 1964) whose shares are held in street names.

^(A) As restated.

(A) Earnings after tax are affected by application of remaining tax loss carry-forward from 1961. Had earnings been taxed at same effective rate as for 1964, the 1963 earnings per common share would have been \$1.54.

(B) No Federal taxes on income for 1962 because of tax loss carry-forward from 1961. Had earnings been taxed at same effective rate as for 1964, the 1962 earnings per common share would have been \$1.64.

ERNST & ERNST
1700 LTV TOWER
DALLAS, TEXAS 75201

To the Stockholders and Board of Directors,
Ling-Temco-Vought, Inc.,
Dallas, Texas.

We have examined the consolidated balance sheet of Ling-Temco-Vought, Inc. and subsidiaries as of December 31, 1964, and the related statement of consolidated income and retained earnings for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. It was not practicable to confirm by direct correspondence amounts receivable from United States Government departments, but we satisfied ourselves as to such amounts by means of other auditing procedures.

In our opinion, the accompanying balance sheet and statement of income and retained earnings present fairly the consolidated financial position of Ling-Temco-Vought, Inc. and subsidiaries at December 31, 1964, and the consolidated results of their operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Dallas, Texas
February 5, 1965

Ernst & Ernst

TRANSFER AGENTS

Republic National Bank of Dallas, Dallas, Texas
The Chase Manhattan Bank, New York, New York
Bank of America National Trust and Savings
Association, Los Angeles, California

REGISTRARS

First National Bank in Dallas, Dallas, Texas
Bankers Trust Company, New York, New York
Texas Bank & Trust Company of Dallas, Dallas, Texas
Security First National Bank, Los Angeles, California

**TRUSTEES, CONVERSION AND
PAYING AGENTS**

5¹/₂% Subordinated Convertible Debentures and
5¹/₂% Subordinated Debentures:
Bank of America National Trust and Savings
Association, Los Angeles, California

AUDITORS

Ernst & Ernst
Common and Series B Preferred Stocks and Debentures listed on the
New York Stock Exchange

NOTE H — OPTIONS TO PURCHASE COMMON AND SERIES A PREFERRED STOCK

The Company has a plan, adopted in 1957, for granting restricted stock options to officers and employees of the Company and its subsidiaries. Under the plan, options may be granted at a price not lower than 85% of market price at date of grant and the terms of such options may range from a minimum of two years to a maximum of ten years from date of grant. As amended in 1963, under certain circumstances, the option prices of outstanding options may be reduced to a price which is not less than 85% of market value at the date of modification and the option periods may be extended for one year. Options are outstanding under two other restricted stock option plans which were assumed in connection with the acquisition of Temco Aircraft Corporation and the purchase of the assets of Chance Vought Corporation in 1960 and 1961, respectively. No additional options will be granted under the Temco plan or the Chance Vought plan. At December 31, 1964, the Company had reserved under all plans an aggregate of 247,768 shares of common stock and 5,042 shares of 4½% Series A preferred stock, of which 213,909 common shares and all of the reserved preferred shares were issuable at option prices aggregating \$2,950,510. Under the plans during 1964, options were granted for 7,500 shares of common stock at option prices aggregating \$128,500, and options for 37,558 shares of common and 630 shares of preferred were cancelled or forfeited. Unoptioned shares under the plans at December 31, 1964, aggregated 33,859 shares of common stock.

NOTE I — CAPITAL SURPLUS

	1964	1963
Balance at beginning of year	\$6,464,958	\$5,908,054
Add (deduct):		
Excess of principal amount of subordinated convertible debentures over par value of common and Series A preferred shares issued upon conversion, less applicable debenture issue expense	—	876,304
Excess of par value of common stock surrendered in exchange for Series B preferred stock over the par value of the preferred shares	132,915	—
Excess of option proceeds over par value of common stock sold under option plans	237,279	—
Excess of par value of Series A preferred stock over par value of common shares issued in conversion	2,611	7,633
Excess of cost over par value of common stock acquired for the treasury	(3,576,431)	(327,033) ⁽¹⁾
Balance at end of year	\$3,261,332	\$6,464,958 ⁽¹⁾

⁽¹⁾ As restated; treasury shares at December 31, 1963 were previously stated at cost.

NOTE J — COMMITMENTS AND CONTINGENCIES

A major portion of sales is subject to renegotiation and other price adjustments. Renegotiation proceedings under the Renegotiation Act of 1951 have been completed for all years through 1963, except that a refund (net of applicable federal income tax credits) of \$1,003,790 was assessed for the year 1953 for which a suit for elimination has been filed in the Tax Court of the United States. Certain governmental agencies have proposed adjustments affecting allowable costs for 1961 and subsequent years. As a consequence, the final disposition of approximately \$6,100,000 of accounts and unreimbursed costs is being delayed pending settlement of the issues with the U. S. Government. Such renegotiation assessment and other adjustments, in the opinion of management, are without merit and will be contested to the fullest extent and no provision has been made therefor in the financial statements.

The Internal Revenue Service is currently examining the final tax return of Chance Vought Corporation, and the 1961 tax return of Ling-Temco-Vought, Inc. Any additional tax liability allocable thereunder to Chance Vought has been assumed by the Company.

The Companies were contingently liable for customer indebtedness guarantees and/or repurchase agreements aggregating approximately \$1,200,000 at December 31, 1964.

The Company has agreed to indemnify bonding companies for losses, if any, under bonds covering the performance of certain contracts by two corporations in which the Company has a financial interest. As of December 31, 1964, the face amount of such bonds aggregated approximately \$3,900,000. No payment has been made under such agreements and none is anticipated.

Substantial portions of plant facilities and machinery and equipment are leased. Leases in effect at December 31, 1964, which expire more than three years after that date require annual rental payments of approximately \$3,900,000 for the next four years, and approximately \$1,200,000 for the succeeding five years. In addition, the Company is lessee of office space in a building occupied in June 1964, for a period of twenty-three years, at an annual rental of \$902,000. The Company intends to sublease to others a large portion of this space.

NOTE K — PENSION PLANS

The presently estimated annual cost of pension plans, as amended, amounts to approximately \$6,400,000. Consulting actuaries have advised the Company that the unfunded past service liability under the plans at December 31, 1964, was not material.

NOTE L — FEDERAL INCOME TAXES

The income tax provision for the year ended December 31, 1964, has been reduced by \$381,000, representing the full investment credit for the year plus the previously deferred credit.

NOTE M — SUBSEQUENT EVENT

The Company intends to offer shares of the common stock of three newly created subsidiaries and cash in exchange for shares of the presently outstanding common stock of the Company. The shares of the subsidiaries so exchanged would represent a minority of the common stock equity with the remaining majority interest as well as the preferred stock of the subsidiaries being retained by the Company.

NOTES TO FINANCIAL STATEMENTS

December 31, 1964

NOTE A — PRINCIPLES OF CONSOLIDATION

The consolidated financial statements include the accounts of the Company and its subsidiaries. Upon consolidation, all inter-company accounts and transactions have been eliminated.

NOTE B — INVENTORIES

The inventories are stated generally at average or accumulated costs, not in excess of market, and are detailed as follows:

	1964	1963
Finished products	\$ 1,984,661	\$ 6,345,694
Fixed price contracts, etc. in process	54,464,624	58,595,221
Raw materials and purchased parts	8,097,059	14,703,633
	\$64,546,344	\$79,644,548
Less progress payments received	32,399,492	35,696,803
	\$32,146,852	\$43,947,745

NOTE C — LOAN AGREEMENT WITH BANKS

Under the terms of a loan agreement expiring May 31, 1965, the Company may borrow up to \$35,000,000. At December 31, 1964, \$21,700,000 of such borrowings were outstanding. The agreement, as amended, contains requirements covering maintenance of working capital, net worth, and other matters.

NOTE D — LONG-TERM DEBT AND DIVIDEND RESTRICTIONS

Long-term debt due beyond one year comprises the following:

	1964	1963
5½% Subordinated convertible debentures due September 1, 1976	\$10,820,600	\$10,820,600
5½% Subordinated debentures due September 1, 1976	23,736,460	23,736,460
Sundry notes payable	2,455,341	34,493
	\$37,012,401	\$34,591,553

Because of previous acquisitions and retirements, no prepayments will be required on the convertible debentures, and prepayment requirements on the remaining debentures have been reduced to \$1,646,140 in 1968 and \$2,130,000 annually thereafter.

Sundry notes payable include a 6% mortgage note payable to an insurance company in the amount of \$2,327,172 with annual maturities of principal ranging from approximately \$62,000 for the year beginning July 1, 1965 to approximately \$198,000 in 1984. This debt is secured by improved real estate carried as an investment at a cost of \$2,673,000.

The indentures pertaining to long-term debt, among other things, contain certain restrictions as to the payment of dividends. Under the provisions of such indentures, the consolidated retained earnings available for payment of dividends at December 31, 1964, as restated effective that date, amount to \$4,500,335. (See Note F for dividend preferences of Series A and B preferred stocks.)

NOTE E — EXCHANGE OF CAPITAL STOCK

On May 19, 1964, the Company's authorized capital stock was changed to 8,000,000 shares of common stock, par value \$0.50, 252,000 shares of preferred stock, par value \$30 (designated as 4½% Series A) and 1,748,000 shares of new preferred stock, par value \$1 (designated as \$3 Series B cumulative convertible subordinated). On May 29, 1964, the Company made

an offer to exchange with its common stockholders one share of the new Series B preferred stock and \$15 in cash for each three shares of common stock tendered. This offer expired on July 2, 1964, as of which date 797,490 shares of common stock had been tendered and were exchanged for 265,830 shares of the new preferred stock and \$3,987,450 in cash.

NOTE F — PREFERRED STOCKS

The 4½% Series A preferred stock is convertible into common stock on a share-for-share basis to June 30, 1965, and on a reduced basis thereafter. The stock is subject to redemption on and after July 1, 1965, at 105% of par value, and is required to be redeemed on July 1, 1970. Each share is entitled to receive cash dividends to the extent consolidated net income exceeds \$2 per share on common stock outstanding on the last day of each year, limited in any year to 4½% of its par value of \$30. At December 31, 1964, accumulated and undeclared dividends (earned in 1964) amounted to \$203,842.

The \$3 Series B cumulative convertible subordinated preferred stock is convertible into common stock on the basis of one share of preferred for 1.25 shares of common, to June 15, 1974, and on a reduced basis thereafter. The stock is subject to redemption at \$75 per share plus accumulated unpaid dividends, and is required to be redeemed in specified percentages (5% to 10%) of such shares outstanding on June 15 in each of the years 1974 through 1985, with the remaining shares to be redeemed on June 15, 1986. However, such redemptions are subject to deferment under certain conditions. Each share is entitled to receive cash dividends at the annual rate of \$3, cumulative and payable before any dividends are paid on common stock, subject to the prior payment of accumulated dividends, if any, on 4½% Series A preferred stock. Accumulated dividends at December 31, 1964, amounted to \$33,228.

In the event of liquidation, after the payment to holders of Series A preferred stock of the par value of \$30 and accumulated dividends, the Series B preferred stock shall be entitled to receive \$75 a share plus accumulated dividends. With respect to Series B shares outstanding as of December 31, 1964, the aggregate of such preference in excess of par value is \$19,671,420. In the opinion of the Company's counsel, the existence of this excess imposes no restriction upon surplus.

NOTE G — COMMON STOCK RESERVED

At December 31, 1964, the Company had reserved shares of its common stock as follows (reference is made to Note H concerning shares of capital stock reserved for option plans):

Reserved For	Number of Shares	Price Per Share
Conversion of 5½% debentures	320,705	\$33.74 ⁽¹⁾
Warrants expiring Dec. 1, 1969, issued with 6¼% senior notes	(54,045 15,685)	30.53 ⁽²⁾ 36.34 ⁽²⁾
Warrants expiring August 31, 1966, issued in connection with purchase of Chance Vought assets	(244,128 244,128)	30.00 40.00
Conversion of Series A preferred stock	150,994 ⁽³⁾	—
Conversion of Series B preferred stock	332,287	—

⁽¹⁾ Conversion price of 5½% debentures is \$38.34 after August 31, 1966. Such prices are subject to adjustments for anti-dilution provisions.

⁽²⁾ Prices subject to adjustment for anti-dilution provisions.

⁽³⁾ Exclusive of additional shares which may become reserved upon exercise of Series A preferred stock options.

**STATEMENT OF CONSOLIDATED INCOME AND RETAINED EARNINGS
LING-TEMCO-VOUGHT, INC. AND SUBSIDIARIES**

	YEAR ENDED DECEMBER 31	
	1964	1963
Net sales, including costs and fees under cost-plus-fee contracts	\$322,859,402	\$329,001,855
Other income	1,324,135	2,292,522
	<u>\$324,183,537</u>	<u>\$331,294,377</u>
Costs and expenses:		
Manufacturing costs, selling, administrative and general expenses	\$311,851,777	\$316,218,860
Interest expense	3,154,155	4,639,357
Provision for losses on disposition of assets	—	1,960,420 ⁽¹⁾
Other expenses	153,574	83,203
	<u>\$315,159,506</u>	<u>\$322,901,840</u>
INCOME BEFORE TAXES ON INCOME	\$ 9,024,031	\$ 8,392,537⁽¹⁾
Federal, state, and foreign taxes on income — estimated — Note L	4,120,434	2,205,728 ⁽¹⁾
NET INCOME	\$ 4,903,597	\$ 6,186,809
<i>Per common share at year end</i>	\$2.31	\$2.12
Retained earnings at beginning of year	20,451,951	14,815,514
	<u>\$ 25,355,548</u>	<u>\$ 21,002,323</u>
Deduct:		
Dividends paid:		
On 4½% Series A preferred stock — Note F	\$ 203,712	\$ 203,722
On \$3 Series B preferred stock — Note F	398,745	—
On common stock — per share: 1964 — \$0.50; 1963 — \$0.125	1,185,464	346,650
Cash paid to holders of common stock in connection with surrender of common shares in exchange for Series B preferred shares — Note E	3,987,450	—
	<u>\$ 5,775,371</u>	<u>\$ 550,372</u>
RETAINED EARNINGS AT END OF YEAR — Note D	<u>\$ 19,580,177</u>	<u>\$ 20,451,951</u>

Provision for depreciation and amortization:
1964 — \$3,465,485; 1963 — \$5,693,061.

⁽¹⁾ As restated.

See notes to financial statements.

LIABILITIES AND STOCKHOLDERS' EQUITY**DECEMBER 31****CURRENT LIABILITIES****1964****1963**

Notes payable to banks — Note C	\$ 21,700,000	\$ 26,800,000
Accounts payable	21,072,046	27,484,380
Accrued compensation, taxes, interest, etc.	11,027,720	12,344,099
Federal and state taxes on income — estimated	3,592,576	2,077,360
Current portion of long-term debt — Note D	167,324	6,324

TOTAL CURRENT LIABILITIES**\$ 57,559,666****\$ 68,712,163****LONG-TERM DEBT — Note D****37,012,401****34,591,553****RESERVES AND DEFERRED CREDIT**

Reserve for deferred federal taxes on income	\$ 714,717	\$ 1,141,612
Reserve for possible future losses arising from adjustment or disposition of assets	1,159,203	1,392,018
Deferred credit (arising from sale and leaseback of machinery and equipment in 1963)	1,860,688	2,180,812

TOTAL RESERVES AND DEFERRED CREDIT**\$ 3,734,608****\$ 4,714,442****MINORITY INTEREST IN SUBSIDIARY COMPANY****99,591****—****STOCKHOLDERS' EQUITY**

4½% Series A preferred stock, par value \$30 — Notes F and H:

Authorized 252,000 shares; outstanding 150,994 shares in 1964, and 151,084 shares in 1963

\$ 4,529,820**\$ 4,532,520**

\$3 Series B preferred stock, par value \$1 — Notes E and F:

Authorized 1,748,000 shares; outstanding 265,830 shares

265,830**—**

Common stock, par value \$0.50 — Notes E, F, G, H, and M:

Authorized 8,000,000 shares; outstanding 1,849,982 shares in 1964, and 2,824,772 shares in 1963, after deducting 1,003,307 shares and 9,658 shares, respectively, in treasury

924,991**1,412,386⁽¹⁾**

Capital surplus — Note I

3,261,332**6,464,958⁽¹⁾**

Retained earnings — Note D

19,580,177**20,451,951****TOTAL STOCKHOLDERS' EQUITY****\$ 28,562,150****\$ 32,861,815****COMMITMENTS AND CONTINGENCIES — NOTE J****\$126,968,416****\$140,879,973**

⁽¹⁾ As restated; treasury shares at December 31, 1963 were previously stated at cost. See notes to financial statements.

CONSOLIDATED BALANCE SHEET**LING-TEMCO-VOUGHT, INC. AND SUBSIDIARIES**

ASSETS	DECEMBER 31	
	1964	1963
CURRENT ASSETS		
Cash and U. S. Government securities	\$ 11,600,511	\$ 12,135,581
Notes and accounts receivable, less allowances (1964 — \$700,885; 1963 — \$927,200) for doubtful receivables — Note J	25,807,632	23,204,582
Unreimbursed costs and fees under cost-plus-fee contracts — Note J	22,308,963	26,467,134
Inventories, less progress payments received — Note B	32,146,852	43,947,745
Prepaid expenses	1,202,638	1,075,749
TOTAL CURRENT ASSETS	\$ 93,066,596	\$106,830,791
INVESTMENTS AND OTHER ASSETS		
Investments in and advances to affiliated companies	\$ 816,327	\$ 494,003
Notes and accounts receivable and other investments, less allowances (1964 — \$2,805,242; 1963 — \$2,830,971) for doubtful receivables — Note D	9,553,783	9,805,780
Excess of investment in subsidiaries over net assets acquired, patents and trademarks, less amortization	3,164,268	2,635,423
Unamortized debt expense	240,188	260,775
TOTAL INVESTMENTS AND OTHER ASSETS	\$ 13,774,566	\$ 13,195,981
PROPERTY, PLANT AND EQUIPMENT		
Land, buildings, machinery and equipment — at cost	\$ 33,512,290	\$ 33,254,756
Less allowances for depreciation	13,385,036	12,401,555
TOTAL PROPERTIES — NET	\$ 20,127,254	\$ 20,853,201
	\$126,968,416	\$140,879,973

Additional shares of common stock were acquired during the year through purchases on the open market and in a tender offer to small shareholders.

As a result of these steps, common shares outstanding at December 31, 1964, had been reduced to 1,849,982 from 2,824,772 a year earlier.

Stockholders' Equity

Stockholders' equity totaled \$28,562,150 at 1964 year-end compared with \$32,861,815 at the end of 1963. This decline is attributable to the capital changes noted above offset, in part, by retained earnings and proceeds from exercise of stock options during the year.

Working Capital

Net working capital amounted to \$35,506,930 at December 31, 1964, compared with \$38,118,628 a year earlier, the decline also reflecting the use of funds in the capital changes mentioned earlier. The ratio of current assets to current liabilities improved, however, to 1.62 at the end of the year from 1.55 at 1963 year-end.

Short-term bank borrowings were cut to \$21,700,000 at December 31, 1964 from \$26,800,000 at the end of 1963. These borrowings are under an unsecured loan agreement dated June 1, 1964, providing for maximum borrowings of \$35 million, and are at the prime rate of interest, currently 4½%.

Facilities

Expenditures for new plant and equipment items totaled \$4,292,000 in 1964. Depreciation and amortization charges were \$3,465,000 for the year.

During 1964 the Company completed negotiations for continued use of Navy-owned facilities housing the LTV Vought Aeronautics and Astronautics Divisions and a use agreement covering those facilities has been executed.

In June 1964 the Company's corporate offices were moved to the new LTV Tower building in downtown Dallas. These offices are leased, but LTV contemplates acquiring a 70% interest in the company which owns this building.

In February 1965 the Company announced the establishment of a new facility in Greenville, South Carolina, to be used for aircraft overhaul and modification work. This facility, located at the site of the former Donaldson Air Force Base, is under lease from the City and County of Greenville.

Research and Development

Company-funded research and development expenditures totaled \$12,822,000 in 1964, down slightly from \$13,641,000 expended in 1963. The importance of such expenditures to the Company's future is amply demonstrated by the important programs currently under way which owe their existence to past R&D efforts. Your Company is dedicated to maintaining its technological superiority through continued emphasis on research and development and has allocated a somewhat larger amount for such efforts in 1965.

Employee Relations

Total employment declined somewhat during 1964 to 16,513 at year-end compared with 17,533 a year earlier, reflecting both cost cutting and the disposition of a subsidiary company early in the year.

New pension plans were put in effect during the year at LTV Altec Division and new plans have been approved for the LTV Ling Electronics Division to be effective in 1965.

Satisfactory employee relations were maintained throughout the year at all divisions. Contract negotiations will commence in the summer of 1965 with several of the major bargaining units whose existing agreements will expire later this year.

1964 FINANCIAL REVIEW

Sales

1964 sales totaled \$322,859,402 compared with \$329,001,855 in 1963. Included in 1963 figures, however, were approximately \$20 million in sales of a subsidiary company disposed of early in 1964 so that sales for comparable operating units increased more than \$13 million over those of the preceding year.

Approximately 93% of 1964 sales were to the U. S. Government. Agencies of the Department of Defense and NASA continue to be the major customers but 1964 sales were well distributed among those various agencies and other customers as shown below:

Air Force	\$113,059,000	35%
Navy	96,723,000	30
Army	51,320,000	16
NASA	30,453,000	9
All other	31,304,000	10

Sales were also distributed fairly evenly among the Company's major product areas, with aeronautics accounting for approximately 38%, electronics 32%, missiles and space 29% and all other 1%.

Earnings

Earnings before taxes amounted to \$9,024,031 in 1964 compared with \$8,392,537 in 1963, as restated to include the pre-tax effect of an extraordinary charge shown as a special item, net of taxes, in 1963. After provision of \$4,120,434 for income taxes, 1964 net earnings totaled \$4,903,597 which, after allowance for preferred dividends, were equal to \$2.31 per share on the 1,849,982 common shares outstanding at year-end.

By comparison, the 1963 income tax provision came to \$2,205,728, as restated, leaving net earnings of \$6,186,809, or \$2.12 per share on the 2,824,772 com-

mon shares outstanding at 1963 year-end. The relatively lower tax provision in 1963 was due to the remaining tax loss carry-forward from 1961 and, if taxed at the 1964 effective rate, net earnings in 1963 would have been \$4,561,000, or \$1.54 per share.

Dividends

A policy of regular quarterly dividends of 12¹/₂¢ per share was established by the Board of Directors in the first quarter of 1964 and four quarterly dividends in that amount were paid to common stockholders during 1964, for an annual total of 50¢ per share.

The second annual dividend of \$1.35 per share was paid in March 1964 to holders of Series A preferred stock and, in December 1964, the first semi-annual dividend of \$1.50 per share was paid to holders of the new Series B preferred stock.

Capital Changes

An important change was made in the Company's capital structure during 1964 by means of an offer whereby holders of common stock were offered shares of a new Series B preferred stock and cash in exchange for shares of common. The offer, made in May 1964, provided for one share of Series B preferred and \$15 cash for each three shares of common tendered in exchange. A total of 797,490 shares of common were received in exchange for 265,830 shares of Series B preferred and \$3,987,450 cash.

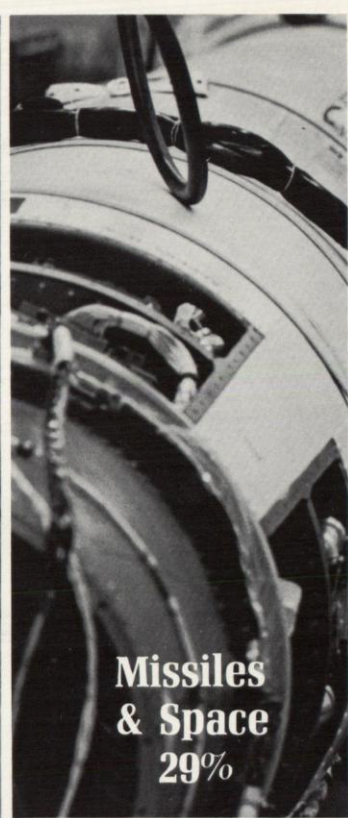
The Series B preferred is \$1 par, has a \$3 annual dividend (payable semi-annually) and each share is currently convertible into 1¹/₄ shares of common. As a result of this exchange, the Company now has available a fixed-income equity security with an established market which can be used for possible acquisitions where a security of this type is indicated. There are no such acquisitions currently under negotiation.



Aeronautics
38%



Electronics
32%



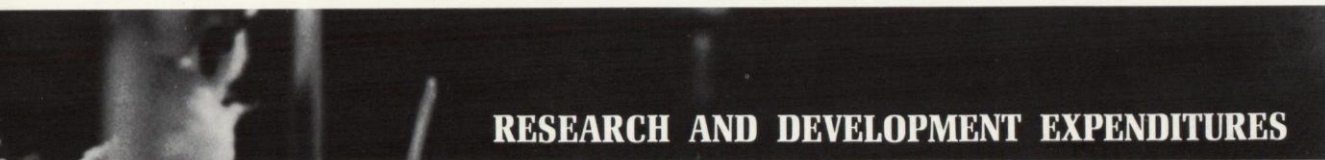
**Missiles
& Space**
29%



Other
1%

1964 SALES BY PRODUCTS AND TECHNOLOGIES

emphasis on research and development



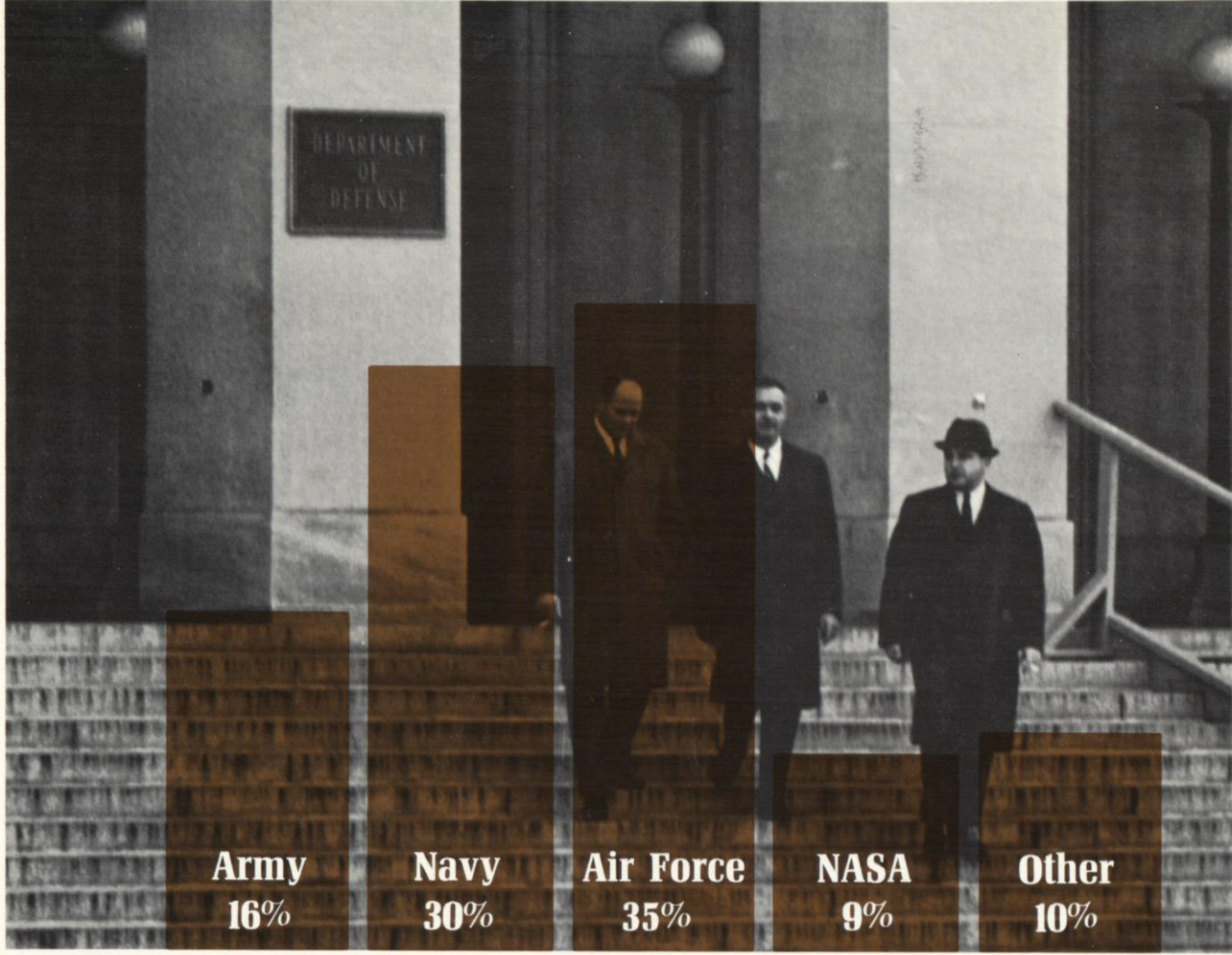
RESEARCH AND DEVELOPMENT EXPENDITURES

1962 \$9,583,000

1963 \$13,641,000

1964 \$12,822,000





1964 SALES BY CUSTOMER

strength through diversification and



LTV

LING-TEMCO-VOUGHT, INC.
P. O. BOX 5003 · DALLAS, TEXAS 75222

Dallas, Texas
Bulk Rate
U. S. Postage
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Permit No. 2853