

NUMBER 7/1980

Annual Awards Banquet



Russell A. Chihoski, Wayne E. Simon, and C. Edward Kirchhoff congratulate each other on earning top awards at annual awards banquet.

Employee referral program reward now \$1000

Beginning today, employees can earn \$1000 for each new professional employee referred by them and hired in salary grade 43 or above. And, for every fourth successful referral, the recommending employee will receive \$2000. Each payment is less taxes. Formerly, the reward for experienced candidates hired and reporting to work within 90 days of the referral was \$750 less taxes.

The reward for candidates in salary grade 41, including new college graduates, has been increased from \$215 to \$300 (less taxes) with \$600 (less taxes) paid for every fourth successful referral.

Added to the program beginning today are referrals for selected critical nonexempt and hourly skills. Referrals for these skilled employees will be accepted when the needs are identified and requirements posted on bulletin boards. Payment will be \$300 (less taxes) with every fourth successful referral earning \$600 (less taxes).

Previous placements apply for the

bonus awards. For example, if an employee has made three or more successful referrals, the next candidate hired on his recommendation will earn him either \$2000 or \$600, depending on the salary grade of the new employee.

In December, those who have successfully referred new employees will be eligible for a drawing. The winner will receive an all-expense paid two-week trip to Hawaii for two.

"The division's plans are to hire about 250 new employees each month through November to meet business requirements," said R. E. Burnett, director of professional and industrial relations. "We believe employees can help meet the plan and we want to reward them for their efforts."

This year, 223 new employees have been hired through the referral program earning participating employees more than \$158,000. Of these new employees, 216 were in salary grade 43 or above and seven were new college graduates.

Special application forms are used in the program to clearly identify employee referrals and to expedite action on these applications. Forms are available from the staffing department, from personnel and department administrators, and from mail rooms.

"Employees should use only original forms," said John H. Pond, staffing manager. "Using duplicates makes the referral hard to identify."

Pond said all referral applications should go through the staffing office and not sent directly to departments or projects. "If the application doesn't go through our office, we have no way to track it and to authorize payment for the referral."

Employee referrals are carefully screened and are routed to all departments and projects looking for a particular skill.

Skill category requirements are posted on the permanent bulletin boards. Employees should check requirements before recommending an applicant.

Work progressing for July 26 open house

The open house advisory committee is progressing with plans for the July 26 event. All employees and their families will be guests for day-long facilities tours and a variety of product displays.

Leroy Hollins is coordinating the committee's work. Those on the committee are Arthur L. Arndt, Dr. David R. Ashmun, Ken M. Betz, Martin D. Bowland, Billy R. Butler, William T. Gansert, Arthur E. Koski, Phyllis K. Montgomery, Robert B. Morgan, Fitzroy Newsum, Amer Plaisted, James A. Sanford, Harold E. Toney, and Dorrall A. Young.

Employee to chair safety conference

George B. Mumma, head of system safety on the MX project, has been named chairman of the Fifth International System Safety Conference to be held at the Brown Palace Hotel in Denver in July 1981.

The conference is sponsored by the System Safety Society, whose members are "professionals dedicated to safety of products and services."

Mumma was involved in the society's first conference held in Denver in 1973. He has enlisted more than 20 division employees to assist in planning the 1981 conference.



KLDR morning show hosts Scott Fisher, left, and Mike McCuen, broadcast live two days from the engineering building lobby. One of the employee guests on the show was Karen Bujaci, right.

Mile High United Way honors division

The Denver Division received the Mile High United Way gold award for its participation in the 1979 campaign at the organization's recent award dinner.

The gold award was presented to companies and organizations "for achieving over 90 percent of their Fair Share potential." The Denver Division locally had 93 percent participation in the campaign, with employees pledging \$207,512 to support the more than 75 United Way member agencies.

Division work discussed at Space Congress

Three Denver division representatives made presentations at the Seventeenth Space Congress held recently at Cocoa Beach, FL. The theme of the congress was "A New Era in Technology."

Richard M. Davis, vice president for the Space Shuttle external tank project at Michoud, gave a status report on external tank.

Arthur E. Inman, liquid boost module project engineer, explained how the Titan liquid boost module will improve Space Shuttle's payload-carrying capability.

Francis H. Bergonz, systems engineering manager, spoke on the manned maneuvering unit design and performance.

Purpose of the congress is to share newly acquired knowledge with others in the aerospace industry and to "alert the (aerospace) community, and through it the world, to the unbounded promise of the new space-oriented technologies."

MARTIN MARIETTA NEWS
Published by Public Relations
MARTIN MARIETTA AEROSPACE
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Denver Division
P.O. Box 179 • Denver CO 80201
May 1980

GPS proposal is submitted

The division's technical and cost proposals for the global positioning satellite system (GPS) have been delivered to the U. S. Air Force Space Division in Los Angeles. The Space Division was formerly the Space and Missile Systems Organization (SAMSO).

Evaluation of the technical proposal has begun and the cost proposal will soon begin the evaluation cycle. Air Force visits to firms competing for the \$152 million contract will be conducted until early June for source evaluation.

The GPS will provide ground control of an 18-satellite constellation, offering precise navigation of the satellites for users.

Three industry teams are competing for the contract. The division heads a team composed of Magnavox, furnishing the navigation receiver; BDM Corporation, providing the communications equipment; and TRW, developing the real-time telemetry and command software.

IBM is teamed with Harris and with Stanford Telecommunications, Inc. The third Team is General Dynamics San Diego and Philco-Ford.

Selection of one contractor to complete GPS work is expected in mid-July.

Frederick H. Hudoff is the division's GPS program director and Parker S. Stafford is technical director. The program is assigned to the command and information systems area headed by Reid H. Clausen.



A fashion show for women employees with employees as models is a recent example of the diverse recreation program. In photo at top models are Cherisse Croll, Cynthia Lee, Lillie Manzanares, Diane Clark, Kathy Cryder, Laurie O'Shea, Yvonne Burnett, Linda Knapp, Linda Wilmot, and Suzette Womak. In second photo are Cynthia Lee, Laurie O'Shea, and Linda Wilmot.

Recreation program attracts majority of division employees

More than half the employees of the division are participating in the revitalized recreation program.

"We believe we are offering something to everyone," said Leroy Hollins, head of recreation and employee services. "However, if something is missing, an employee can get that 'something' started by getting 20 others with the same interest together and letting us know what they want."

Recreation facilities on division property include an archery range, softball fields, rifle and pistol range, jogging trails, a fitness room, club meeting rooms, locker and shower room, a covered picnic pavilion, picnic tables, barbeque pits, and a children's playground.

The recreation office can also make arrangements for employees to use tennis courts, gymnasiums, bowling centers, and golf courses in the metropolitan area.

As examples of current employee participation, Hollins gave these statistics:

- 56 softball teams registered for league play with about 20 percent of the division's employees on the teams;
- 54 volleyball teams with about 700 members;
- Up to 30 golf leagues with 20 to 25 players in each; and,
- More than 350 employees in the tennis tournaments.

In addition, Hollins said his office has a wide range of discount plans for travel and amusement as well as various products.

Aerojet employees earn safety award

Seventeen Aerojet Service Company employees stationed at the Denver Division have earned their company's safety award for 559 days without a lost-time accident. The company's safety goal is zero lost-time accidents. For achieving this goal, employees each earned a \$20 gift certificate at the store of their choice.

The Aerojet employees service Titan engines from the time they arrive in Denver until they are shipped to launch sites. The engines are manufactured by the Aerojet Liquid Rocket Company in Sacramento.

Donald A. Barnes, acting Aerojet base manager here, said, "The Denver Division safety people and the Air Force plant representative office have been most helpful to us in achieving our safety record."

Barnes is acting as base manager for Isaac Jacobs who is on medical leave.



Roy Calvin (right), vice president, Martin Marietta Corporation, accepts a plaque from Anne T. Darlington and John H. Davis commemorating Martin Marietta's first year as national underwriter of "Wall Street Week." The presentation was made at the executive offices of Martin Marietta in Bethesda, MD. "Wall Street Week" is broadcast nationally on 250 public television stations as a production of the Maryland Center for Public Broadcasting. The program, featuring Louis Rukeyser, is telecast at 8:30 pm each Friday by KRMA-TV, channel 6, in Denver.

Credit union taking loan applications

The Red Rocks Federal Credit Union is taking applications for three types of loans: share-secured, revolving credit, and collateral-secured.

Share-secured loans, with an interest rate of 10 percent, are made to credit union members who use their shares as collateral for the loans.

Revolving credit loans are similar to bank credit card loans. A member makes application for a line of credit and may draw against the amount approved without further action by the credit union loan committee. Lines of credit are limited to \$1000 with an interest rate of 15 percent.

Collateral-secured loans are available for financing automobile purchases and other "provident purposes." Interest rate on new car loans is 12 percent; all other loans in this category, including used car loans, will be 15 percent.

Jeffrey A. Kildow, chairman of the credit committee, said his committee plans to meet each Tuesday and Thursday to review loan applications. "Our objective is to take initial action on all applications within four days so that members will have to wait no longer than that for reports on their applications." He stated loan approvals are now taking longer than four days simply because of the newness of the organization and formal routines have not been completely set.

The credit union has more than 1400 members and is still growing. Call extension 6000 for additional information.

New security chief named at Canaveral

James H. Mathena has been named chief of security at Canaveral operations replacing Eugene K. Quillen who has retired.

Before assuming his new position, Mathena was senior security specialist at the Orlando division for eight years.

He is a member of the board of directors of the National Classification Management Society and frequently writes and speaks on industrial security. In 1979, he conducted seminars on "Highlights to Look for in Executive Order 12065" and published an article on the subject in Security Management Magazine.

Mathena has an AS degree in private and industrial security from Valencia Community College, Orlando, and a BS degree in business administration from Rollins College, Winter Park.



In this aerial view of launch complex 29, pad A, at Kennedy Space Center, the liquid oxygen storage is shown at the upper left and liquid hydrogen storage at upper right. Lines from these areas supply propellants to spacecraft at the center of the complex.

Storage, transfer systems for Shuttle external tank propellants refurbished

Refurbishment of the main propulsion system cryogenic storage and transfer systems was recently completed at launch complex 29, pad A. Work was done by Martin Marietta external tank operations personnel. The first Space Shuttle is scheduled for launch from the Kennedy Space Center complex later this year.

The system includes the liquid oxygen and liquid hydrogen propellant storage tanks, transfer and vent lines to and from the launch structure, and a hydrogen burn pond. The facility was built in

the mid-1960s for the Apollo program and was last used for the May 1973 Skylab launch.

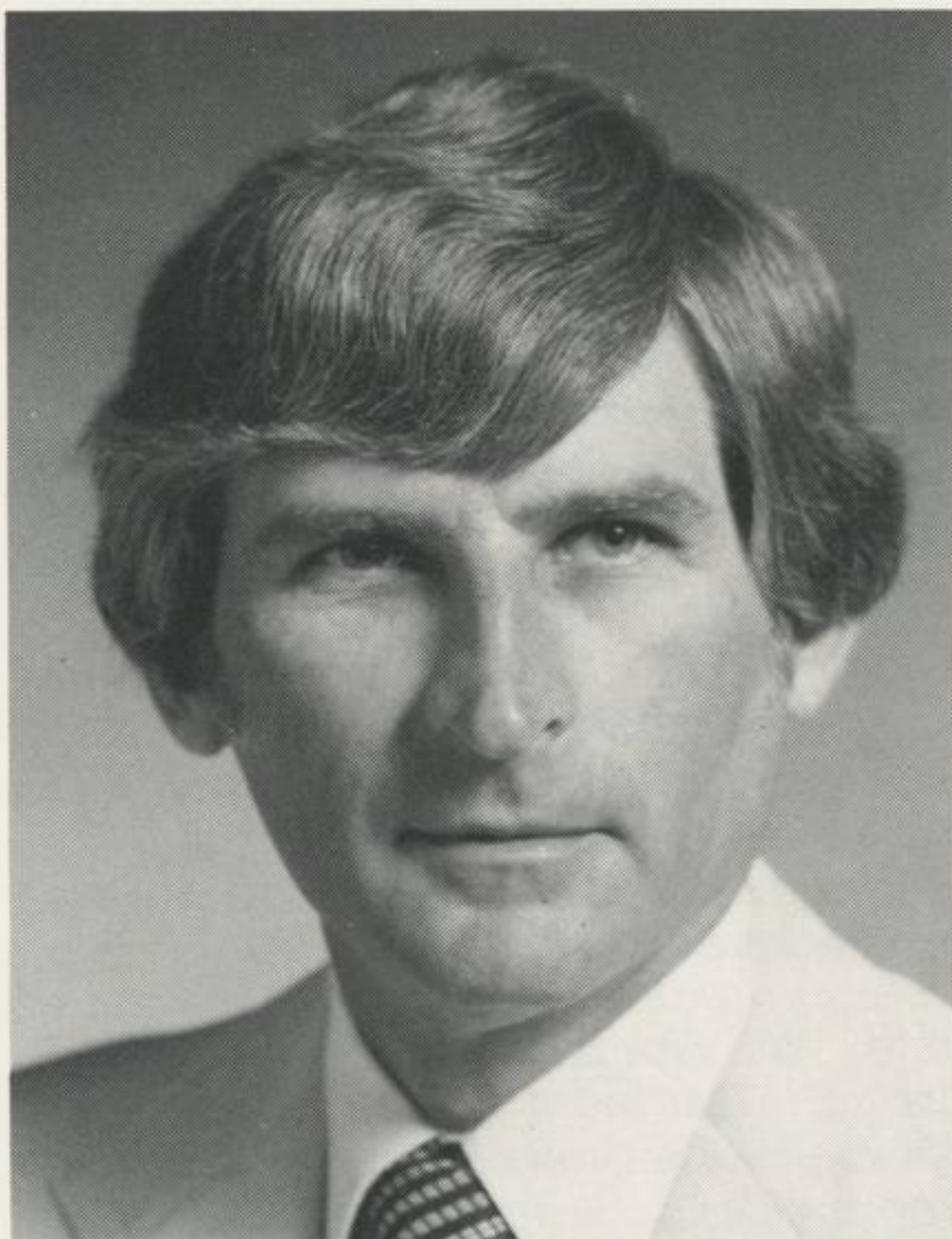
The contract for this work was awarded by NASA in December 1976 and includes refurbishment, site activation, and maintenance of the systems. The completed refurbishment phase included inspecting, cleaning, repairing, replacing or modifying, and recertifying nearly 2000 components.

Because the KSC complex is near the Atlantic Ocean, corrosion was a concern. Storage tanks, instrument and pneumatic consoles, pipe supports, and pump base plates were sandblasted and painted with an inorganic zinc-base paint to help prevent corrosion.

Soft goods in age-sensitive components were exchanged, storage tanks were checked for leaks, and pumps were dismantled and overhauled. Transfer and vent lines, measurement sensors, pneumatic tubing, and electrical cables were inspected, replaced or cleaned, and tested.

To maintain the propellant storage and transfer facility, Martin Marietta employees will conduct periodic inspections, control corrosion, clean and maintain vacuums and purges, and test and service all equipment.

Deliveries of liquid oxygen and liquid hydrogen began in 1978.



James H. Mathena

Employees recognized for outstanding performance

Division employees were honored at the annual awards banquet on May 17 for their outstanding performance and contributions to the success of the division in 1979. The banquet was held at the Fairmont Hotel.

Top awards were presented Russell A. Chihoski, Wayne E. Simon, and C. Edward Kirchhoff.

Chihoski was named author of the year for his paper, "Expansion and Stress Around Aluminum Weld Puddles."

Inventor of the year honors were awarded Simon for more than 40 inventions in various technical disciplines submitted during his career. Most of the inventions resulted from timely solutions to technical problems encountered in the performance of contract work by the division.

Kirchhoff was chosen engineer of the year for his leadership in the engineering development of the near-field facilities.

Special awards were presented Robert B. Bolles and Reid H. Clausen for exceptional contributions to the Denver product development review board. After serving on the board since its inception, they recently left the review board because of new job assignments.

Other employees recognized at the awards banquet:

Publication awards

Distinguished contributors: Allan W. Anderson Jr. and Eric J. Mumme; John E. Anderson and Ralph N. Eberhardt Jr.; Stanley Barrett; Russell A. Chihoski; Benton C. Clark III; Douglas R. Diederich and William J. Owen; Willard R. Haas, Frederick A. Jaeger, and Murlin T. Howerton; Frederick E. Lukens; Robert K. McMordie; Richard D. Moog; Loman T. Park; Kenneth R. Payne; Roger T. Schappell and John C. Tietz; Elvis D. Simon; and Franklin P. Witte.

Honorable mention: Edgar W. Anderson; Lyle E. Bergquist; David G. Beshore and Frederick A. Jaeger; William M. Bloomquist, John C. Flemming, and Frank Bartko; Charles N. Bolton; Samuel P. Bronson; Alfred O. Britting Jr. and John W. Lear; Charles D. Brown and Ronald E. Frank; Aubrey J. Butts; Carl E. Carlston; Benton C. Clark III (two papers); William B. Collins, Frederick E. Lukens, James H. Masson, and David A. Nichols; Thomas G. Darone;

Wilfred L. De Rocher Jr. and Robert O.



Reid H. Clausen



Robert B. Bolles

Zermuehlen; Richard L. Donovan and William D. Miller; Brian N. Etheridge and Ronald B. Schroer; Dale A. Fester (two papers); Ralph O. Hookway; William J. Kacena III; C. Edward Kirchhoff; Ronald L. Kirlin; John W. Lear; James W. Lowrie; Kenneth E. Ekman and Franklin P. Witte; Mohan S. Misra, Susan D. Lemeschewsky, and Donald A. Bolstad; Robert L. Moser and Matthew S. Imamura; Joseph A. Muscari;

David A. Nichols, William R. Wilson, and Arlo D. Graveseth; Sheila A. Oehler, Robert K. McMordie, and A. Burton Allerton; William E. Pipes III; John T. Polhemus; Robert R. Prudhomme; Ward D. Rummel; James R. Tegart (two papers); J. Robert Tewell, Richard A. Spencer, and Joseph A. Lenda; Prabhakara P. Rao and Michael A. Woeste; Frank A. Vandenberg; Harold O. Wallace; Richard W. Webb Jr.; and William R. Woodis.

Inventor awards

Outstanding contributors: Robert L. Gates; Wayne E. Simon; William H. Tobey.

Distinguished contributors: Walter F. Barker; James C. Beblavi; Burton J. Becker; Philip L. Becker; Daryl D. Bielenberg; Frank V. Bilek; Robert B. Blizzard; Richard D. Boydston; Howard J. Brown; David N. Buell; Tibor Buna; Merton L. Clevett Jr.; John V. Coyner Jr.;

Donald S. Crouch; Steven C. Espy; Melvin W. Frohardt; Lyde D. Graff; Charles A. Hall; Thomas R. Heaton; Gustave K. Jung; James T. Kenny; Robert J. LaBaugh; John R. Lager; Thomas H. Lohaus; Raymond L. Opper; Jimmie D. Osborn; Clarence A. Ourada; William J. Owen; N. Nolan Pass; Gloria F. Patterson; Wayne E. Simon; and William H. Tobey.

New technology awards

Peter W. Abbott; Patrick C. Carroll; Carl E. Carlston; Philip C. Carney; Wilbur H. Cash Jr.; Angelo J. Castro; Benton C. Clark III; Martin J. Costello; William C. Croucher; Charles E. French; Ronald V. Geiger; Jeffrey L.

Hayden; Frank J. Hefestay Jr.; Gilbert M. Kyrias; Robert J. LaBaugh; Thomas H. Lohaus; Mark D. Matlin;

George Morosow; Albert G. Nemes; N. Nolan Pass; Norman M. Phillips; Roger T. Schappell; Elvis D. Simon; Francis I. Tallentire; H. Michael Thomas; John C. Tietz; and Daniel C. Van Hart.

Technical achievement awards

Satish K. Anand; C. Eugene Bond; J. David Buck; Charles R. Class; Lyle G. Cloud; Bobby R. Cooke; Gene M. Crandall; Teresa A. Curlander; Frederick W. Dawson; Glen J. Dickman; Thomas E. DuPont; Robert C. Fuhrmann; Ronald V. Geiger; Scott E. Gilles; William H. Grigson;

D. Keith Houser; John D. Hukill; William S. Ivers; Harold H. Jones; Edmund L. Kinney; C. Edward Kirchhoff; Thomas W. Knapp; Claude W. McAnally III; Ian M. McMeeking; Thomas A. Milheiser; Thomas A. Milligan; Nobuo Miyaki; Lawrence W. Norquist; William J. Raymond; Michael K. Saemisch;

David R. Shouldice; Ronald D. Singley; Robert W. Smith; C. Russell Spath; Takashi Tomooka; John C. Tsucalas; David L. Turner; W. Raymond Weinrich; and Herbert D. Wilkening.

Operational performance awards

Richard G. Adamson; William F. Barrett; Santo B. Bertuzzi; Paul R. Brown; Billy R. Butler; Clifford J. Choccol; Joyce E. Dame; James E. Devine; C. William Diehl; Louis S. Favata; Gareth D. Flora; Nelson G. Freeman; Alfonso L. Garduno; Philip L. Greenwood; Francis J. Hart; Carl F. Hegarty;

Terry L. Hibbard; Thomas L. Hood; Eugene J. Horak; James T. Josephson; Edward J. Kalbfleisch; Elmer E. Koons; William Leary; George B. Macaulay; Ronald W. Marker; Richard J. Masi; James W. McAnally; George W. McGee; Peter A. McInnes; Raymond J. Nalty;

Fitzroy Newsum; William C. Oliver; P. Paul Plank; Ronald K. Powell; W. Paul Rader; Ron R. Remy; Philip L. Rogers; Bonnie J. Saccotelli; John A. Sanders; Richard E. Sebben; Richard H. Seeley; Frederic D. Selbie Jr.; Kenneth R. Shipe; Robert H. Snodgrass;

Ralph L. Stewart; Henry J. Summers; John H. Vowells; Arthur L. Welch; James R. Weston; Helen K. Williams; Thomas C. Williams; Harrison C. Wroton; Arthur P. Young; Honora A. Youngs; and Gerald A. Zionic.

At Michoud

Tank insulation is 'a new science'

Various methods, some simple and some complex, have been used in attempting to insulate spacecraft from the temperature extremes to which they are subjected in flight. German scientists used wet oak bark to insulate V-2 rockets. Modern methods have included sandwiching insulation between walls or packing it in honeycomb.

But none of the methods were suitable for Space Shuttle's external tank with its weight and cost considerations. For external tank, the insulation will be applied to its outer walls.

"A new science," is the way stress engineer Gustave Jung describes the undertaking at Michoud operations. "Sending up rockets with the insulation sprayed on the outside is a totally unique approach," he said.

Insulation materials existed to do the job, but Jung discovered that almost everything involved in the insulation's application could spell instant success or failure. The variables included such things as composition of the primer and insulation, how the surface was finished, how the primer was applied, and even the thickness of the insulation.

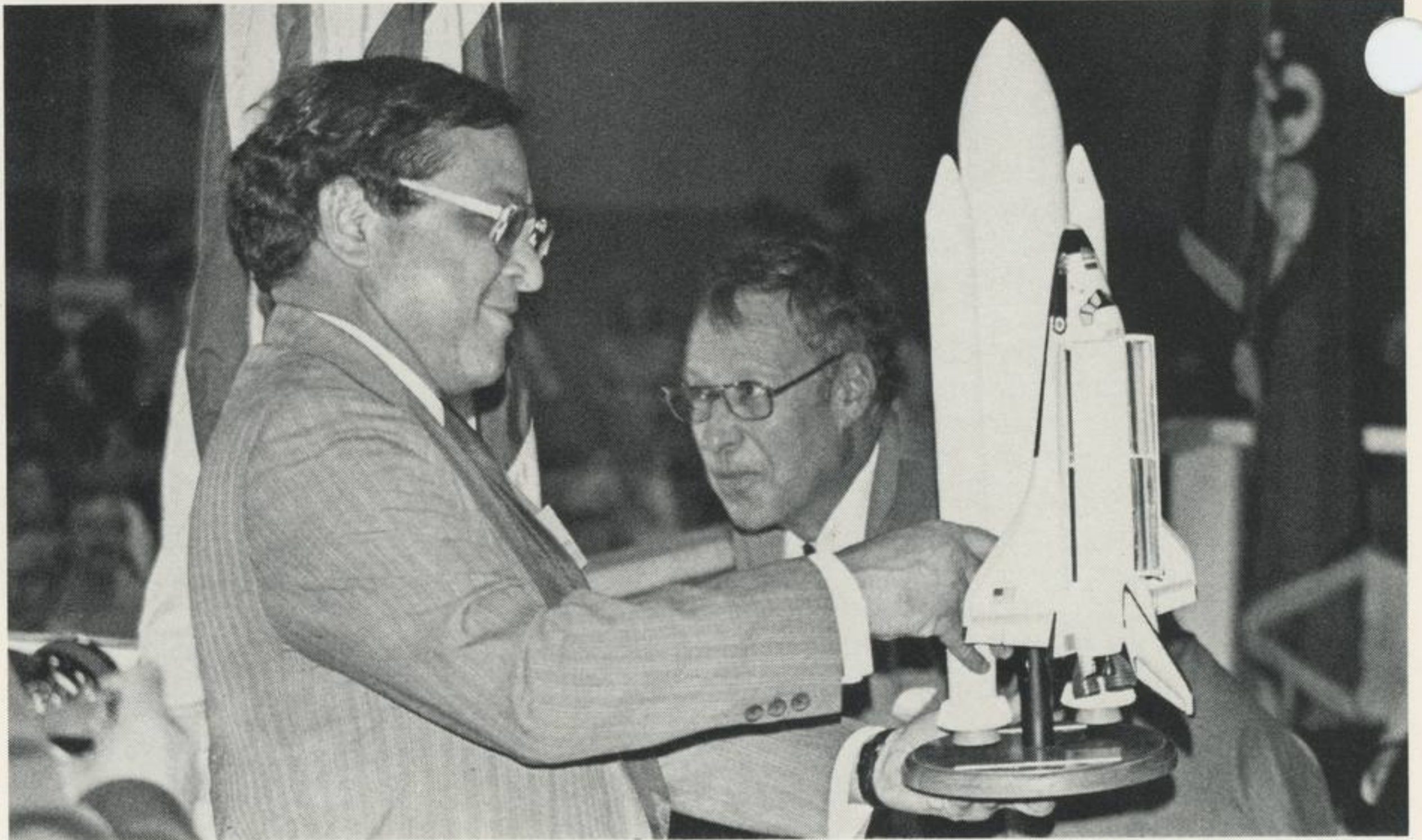
External tank insulation is required to do more than insulate. It has to survive some strain and it must be capable of flexing with the tank as the tank is filled. Another set of variables emerges when the different radii of the curves of various parts of the tank are added.

The major problem was to find a test device that could quickly and inexpensively examine all the variables.

Jung, who considers himself somewhere between a scientist and an engineer, set out to develop a device that would combine temperature, pull, and curvature testing. Within six weeks he had a model to test.



Gustave Jung is shown at Michoud operations with the device he developed to test effectiveness of spray-on insulation for the external tank.



New Orleans Mayor Ernest Morial beams after being presented with a scale model of the Space Shuttle on behalf of Michoud operations employees. Dr. Mathias P. Siebel, NASA Michoud Assembly Facility manager, looks on in the background.

New Orleans mayor visits Michoud

New Orleans Mayor Ernest Morial, a recent visitor to the Michoud Assembly Facility, said the facility is "extremely important" to New Orleans. And, he added, "Martin Marietta will be a major employer here through the end of the century, pouring millions of dollars a year into our economy in salaries and local purchases. But the significance of this facility to our economy goes far beyond its immediate dollar contributions."

Mayor Morial said Michoud's success serves as an "impressive example" in persuading other industries to locate in New Orleans.

The mayor was the guest of NASA and Martin Marietta. During his visit, he held private talks with executives of the two organizations regarding development of the area surrounding Michoud, and spoke to an assembly of more than 2000 employees.

Michoud recreation administrator named

Janet L. Talley has been named administrator of recreation and employee services at Michoud. She will develop and organize recreational activities, including team sports and exercise groups.

Team sports will include softball, volleyball, tennis, bowling, and many other activities. Ms. Talley will lead exercises for employees at lunch time on the facility grounds.

"The activities will be geared to include novice, intermediate, and advanced athletes," Ms. Talley said, "so beginners at any sport need not feel awkward. My goal is to get as many people as possible interested in some type of fitness or recreation program."

The recreation department will offer a central location for employees to obtain sports equipment and will assist with shows and trophies.

Ms. Talley has worked as a freelance tennis pro for the past several years and, before that, taught physical education at the University of Southern Mississippi. She earned a bachelors degree in education from Centenary College and a masters degree from Northwest Louisiana State University.



Janet L. Talley is Michoud recreation and employee services administrator.