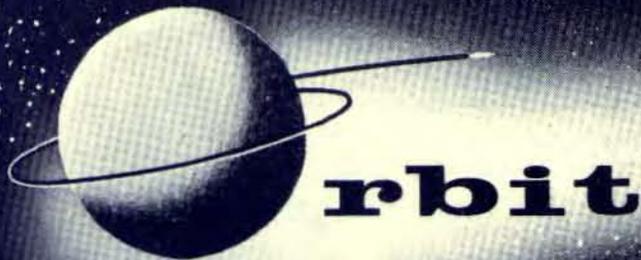




The Rocketeers - Photo on left, L to R: H. Douglass, R. Priem, M. Heidmann, F. Salzano, H. Price, M. Lieberstein, C. Auble, W. Tomazic, D. Nored, J. Sloop. Photo on right, L to R: Back row; I. Pass, G. Morrell, C. Feiler, G. Kinney, J. Rollbuhler, A. Tischler, E. Krawczonek. Front row; L. Baker, J. Bahan, E. Rothenberg, C. Bibbo, F. Kutina, D. Ladanyi.

Wing Tips: October 28, 1955



LORENZO & GODWIN WIN ARS - CHRYSLER AWARD



Tom Godwin and Carl Lorenzo.

Two men of the Rocket Systems Branch, Carl F. Lorenzo and Thomas W. Godwin, Jr., received the 1958 American Rocket Society - Chrysler Corporation Student Award.

In addition to plaques, Lorenzo and Godwin shared the award of \$1000 for their research on flourine gas reaction on missile metals at high temperature. Their work was done as undergraduates of Fenn College and cooperative students at Lewis Research Center.

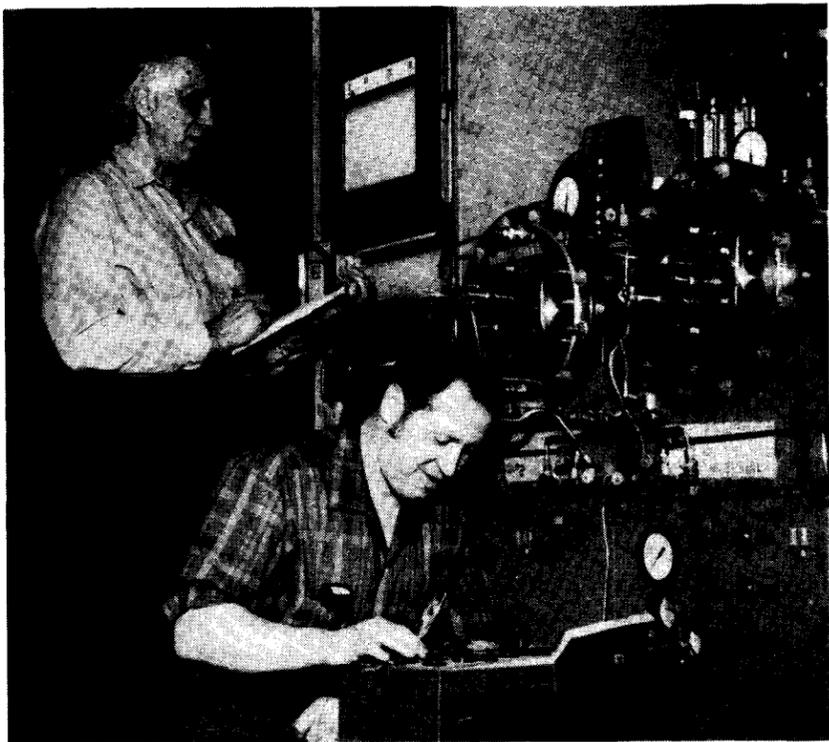
"Data collected as a result of the flourine gas tests will be useful in designing combustion chambers for rocket engines of the future," Lorenzo and Godwin said. "Interest has always been high in whether flourine gas could be used as a rocket propellant. However, there were no facts on its reaction on

metals at high temperatures such as encountered in missiles and rockets."

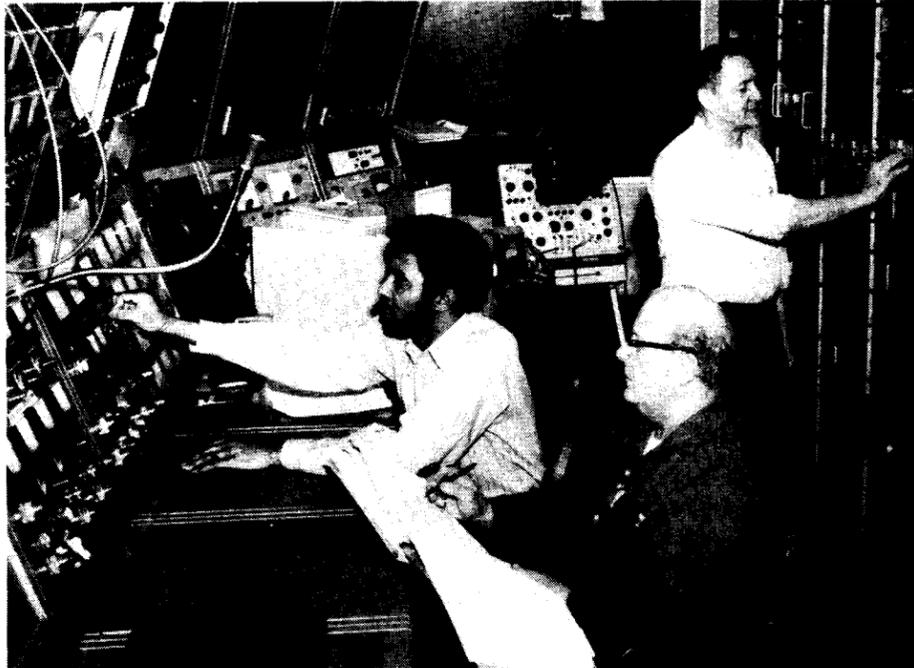
"In our tests, reported Lorenzo and Godwin," we isolated the purified metals in a special cylinder designed to withstand pressures as high as 3000 pounds per square inch. By filling the chamber with flourine gas and heating the metals electrically, we were able to record the temperatures at which metals would ignite. This data was never before available."

Presentation of the award was made at the annual ARS meeting in New York City the week of November 17th. Lorenzo read their winning paper at the student conference November 19th.

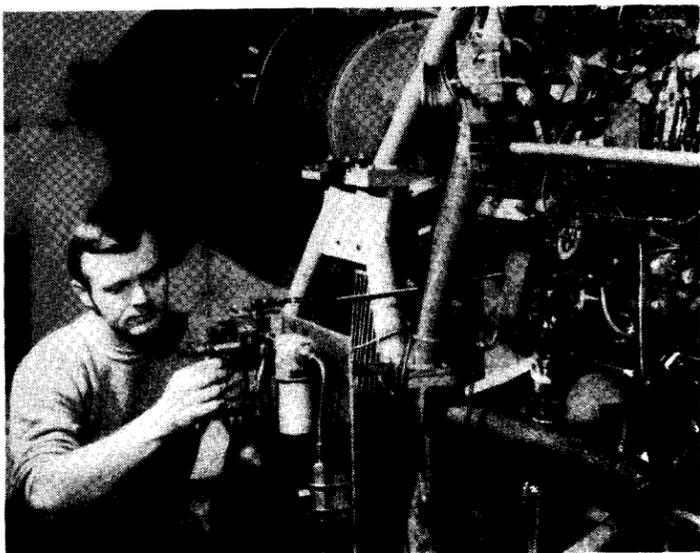
Members of the student chapter of the ARS of Fenn College were generally recognized as leaders by the other college students present. Allan J. Smith, Jr., present chairman of the Fenn student chapter and coop student at Lewis, presided over their conference. Lorenzo, Godwin and Smith were instrumental in organization of the Fenn Rocket Club, the first student chapter of the ARS in Ohio. Smith is active as a Lewis coop student, as are 40% of the Rocket Club members. The guiding hand of the club is Prof. Albert Lord of Fenn's mechanical Engineering Department. Prof. Lord was a member of the Lewis staff for many years before joining the Fenn staff.



Howard Schultheis (standing) and Bill Funk take readings on furnace for processing metal powders.



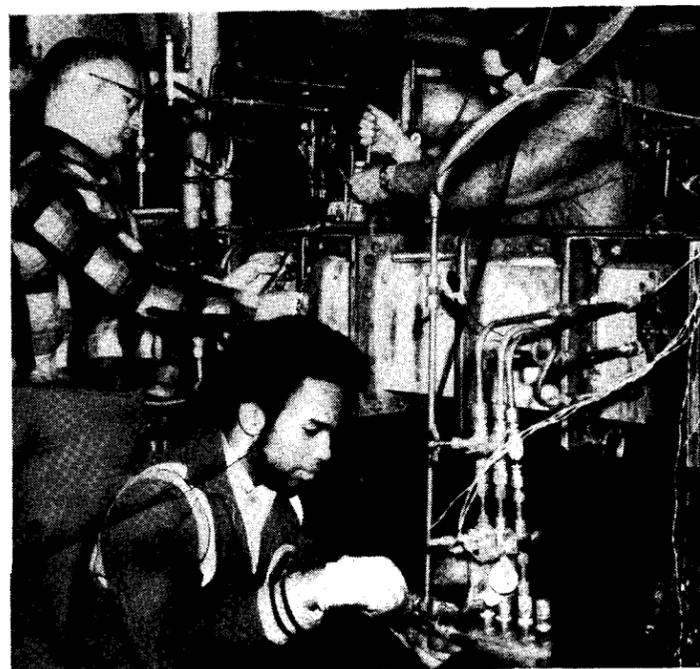
Harold Gustin (foreground), Vern Mays and Steve Palko monitor test from Dynamitron Control Console room.



Gary Lorenz checks hydraulic fail-safe unit attached to J-85 engine.



Willie Napier (left), and Ed Krawczonek convert environmental chamber in Rocket Engine Test Facility to accept components for rocket propulsion module.



Stan Wilkins (foreground), Bill Lechine and Jerry Ulmer prepare test bed for testing advanced burner configurations in Rocket Lab.

Personnel in the Materials and Rockets Branch, the largest at Lewis in terms of manpower, are proud of their technical support to some seven research divisions ranging from rocket engine testing to processing sub-micron powder used for producing new materials.

Headed by George Tunder, the 145 aerospace mechanics, electricians, electronic mechanics, electrical equipment operators, and apprentices set up, operate, and maintain research equipment in more than 10 areas around the Lab. Three section heads: Louis Herman, William Lang and Joseph Kulik supported by nine supervisors oversee the branch's activities.

About 45 percent of the Branch's personnel is assigned to the Materials and Structures Division. There the technicians support engineers involved in studying refractory materials, metals and advanced superalloys. Located in the Materials Processing Laboratory is the branch's toxic machine shop — the only one of its kind within a five-state area. Manned by trained personnel, it is equipped with absolute filter systems, and all radioactive and toxic materials requiring machining are checked regularly by the Health Physics Section.

At the Rocket Engine Test Facility, Tunder's men are converting that facility to test the Research Propulsion Module components.

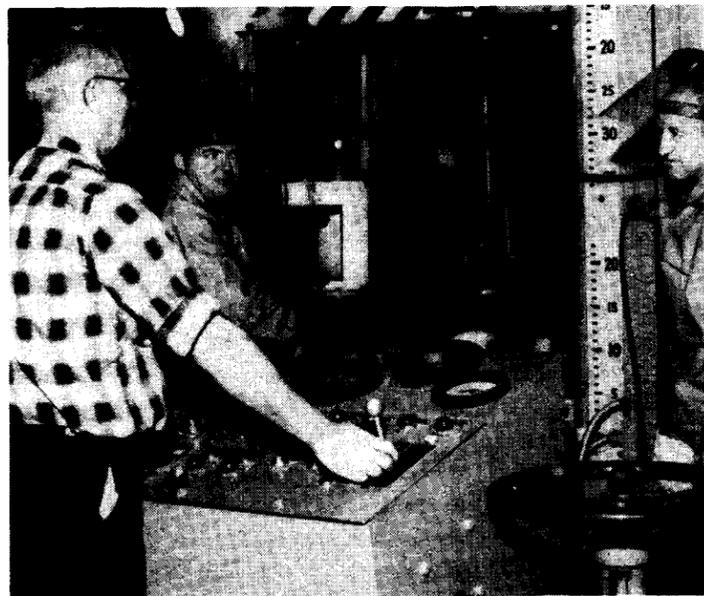
Tunder's men are involved in almost every type of research program at the Lab, providing needed highly skilled technical support. Initials like RCL, HEFL, SPL, ORL, MPL, LMCL, RETF, BML, FML, and M&S are all familiar to these men. They are initials for facilities where much of the Lab's research is being conducted and where the Materials and Rockets Branch plays a very vital support role to bring about the success of the various projects.

Skilled tradesmen



John Dorner (left), Barry Willison and Gene Hunter install vacuum jacketed cover at the high load tensile testing facility in south area.

Photos by
John Marton



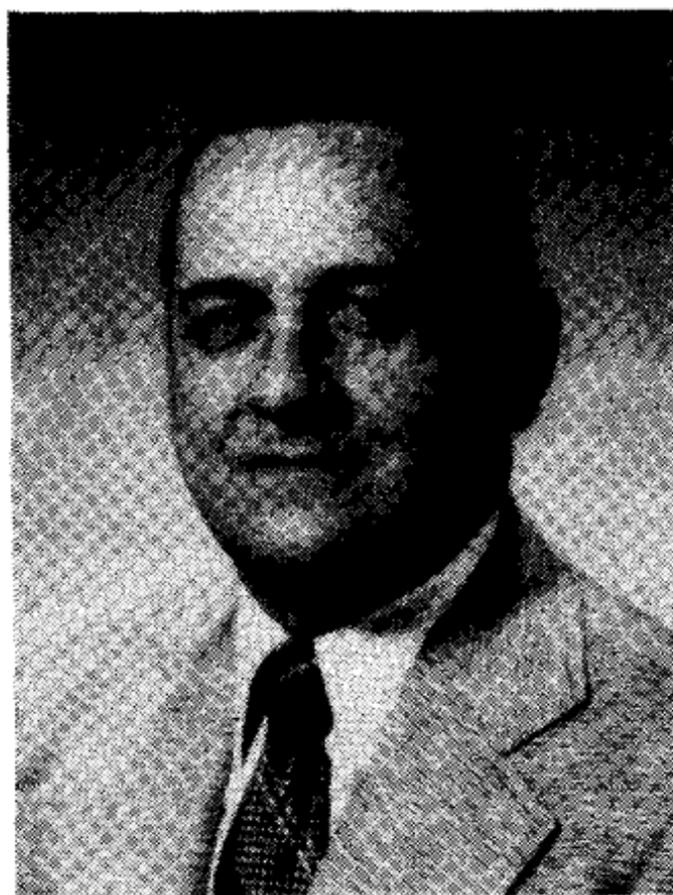
Al Dolinshek (at controls), Lou Manyak (center) and Bud Tesack prepare to extrude refractory material on a 1000-ton extrusion press.

Krawczonek named chief

Eugene M. Krawczonek has been appointed Chief of a newly organized Engineering Operations Branch in the Chemical Propulsion Division. The branch was formed when the Propellant Behavior Operations Section, formerly of the Spacecraft Technology Division, was added to Krawczonek's supervision in addition to his Rocket Operations Section.

Krawczonek has worked for Lewis since 1955 in rocket research operations. He was graduated from Fenn College, now Cleveland State University, in 1951 with a Bachelor's degree in mechanical engineering. For four years he worked as a civilian engineer for the Naval Ordnance Department in California.

In 1967, Krawczonek became section head of the Rocket Operations Section, a position he held until his present appointment.





Jack A. Saltzman (left), Tom A. Coney, Daniel D. Chrulski and Ralph J. Slavik launch sounding rocket in preparation for atmospheric pollutant tests.



Max Melner (left) and George A. Repas discuss new designs for a combustion program.



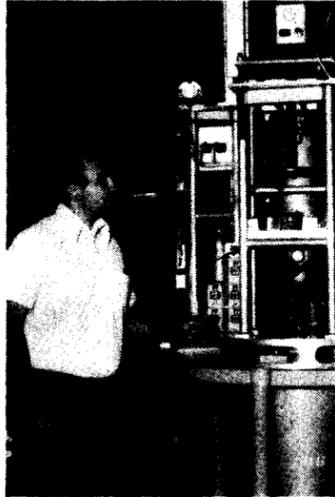
Branch Chief Eugene M. Krawczonek (left), Edie J. Donohue and Elias L. Corpas plan scheduling for Zero G Facility.



Neal F. Wingenfeld (left) and Larry C. Leopold prepare to operate low cycle fatigue engine from control room.

They solve energy problems; aid Shuttle technology

Advancement in the exploration of space, depends on the advancement of propulsion and launch vehicle technology. A chemical rocket program at Lewis is aimed at improving performance, reliability, re-usability of rocket engines while at the same time, reducing the development time and cost of tomorrow's rocket engines.



Ray G. Sotos examines new drop vehicle at Zero Gravity Facility.

Handling the operation of facilities for conducting these and other tests are members of the Propulsion Operation Branch headed by Eugene M. Krawczonek.

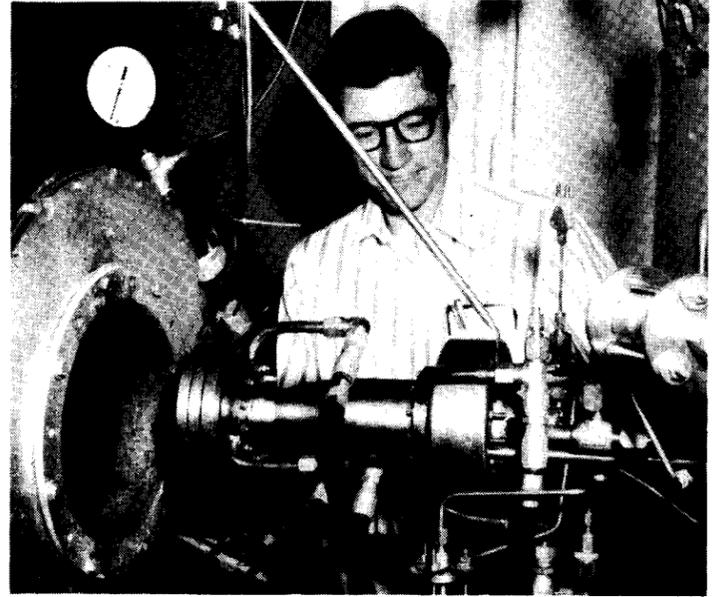
To a farmer, the "south 40" could be the back 40 acres of worthless bottomland, but Lewis' "South 40" houses such impressive facilities as the Rocket Engine Test Facility, the Fracture Mechanics Lab, Calorimeter Test Facility and the Laser Rig. All these facilities are actively running in support



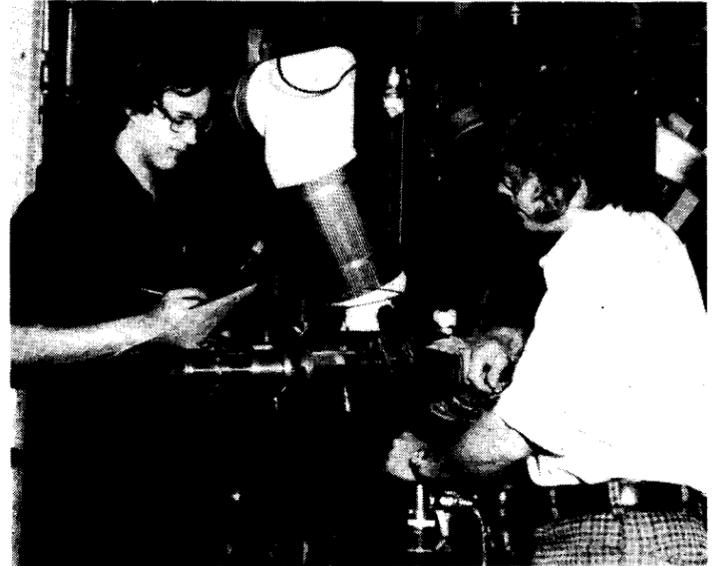
David W. Vincent conducts test on multi-layer insulation blankets.

of various Lewis programs by members of the Propulsion Operations Branch.

In addition to the South 40 area, personnel of the branch also handle operations at the Zero Gravity Facility and several cells at the Rocket Lab.



John A. Kobak runs MHD combustor to support energy program for a research division.



Darold L. Neff (left) and Scott D. Meyer inspect attitude control research rocket facility.



Bernard I. Sather (left) and Wayne A. Thomas make out S-40 facilities schedule.

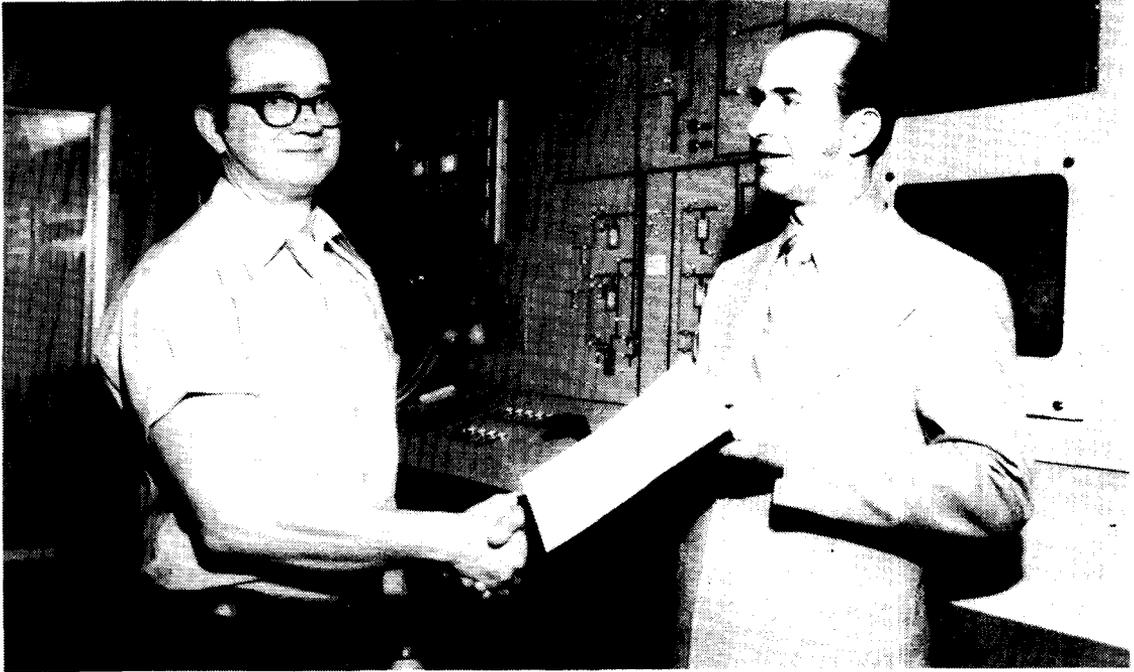
The Zero G Facility recently completed its 1000th drop and has "demonstrated a remarkable versatility in adapting drop packages to the needs of the various research programs it serves," Krawczonek said. Averaging about one drop per day, the facility is providing continuing support to Centaur, Viking and various other Center projects.

At the Rocket Lab, Krawczonek's men recently completed a Shuttle Attitude Control Rocket program which amassed probably a world record total of 51,000 firings on one engine. Af-

fectionately dubbed the "belching dragon" because of the cycle mode of testing, the contractor-designed engine operated well beyond its normal expected life, according to Krawczonek. "Tests like these provide in-house verification of possible designs for various Shuttle engines and significantly contribute to that overall effort."

From energy problems to Space Shuttle technology, members of the Propulsion Operations Branch are providing their services and expertise to run the facilities.

Photos by
Martin Brown & Don Huebler



Edward M. Krawczonek (left) accepts incentive award letter from Branch Chief George Tunder.

TID leads idea parade

Test Installations Division employees dominated the list of the latest Incentive Award winners with five of the six cash award recipients assigned to that division.

Edward M. Krawczonek led all recipients with a cash award of \$265 for his suggestion to eliminate processing unimportant test run films. The suggestion is expected to save the Government over \$4200 during the first year.

Paul M. Antczak is \$200 richer because he suggested using a modified concrete radial drill stand in certain drilling situations. His idea saves time, improves meth-

od and simplifies work.

Charles R. Martin, discovered an easier method of replacing couplings on the Wind Turbine at Plum Brook. His suggestion earned him \$140 and resulted in \$1700 in savings to the Government.

Fred R. Murray suggested eliminating changing fixed probes for each angle surveyed during variable angle sur-

vey probes. Murray's idea was worth \$100.

Allen L. Bollman received \$75 for his idea covering the modifications to adapt the existing 1000 amp power supply for temperature cycling metal fiber composites.

Leonard L. Leopold of the Fabrication Division is \$50 richer for his suggestion on the reconditioning of used stainless steel fittings.

Kin makes dad proud

now with a Cleveland law firm.

The obviously pleased father is a technical publications editor assigned to the Chemical Energy Division.



November 11, 1977

Lewis honors

62 for top

job performance

Sixty-two employees were honored for superior job performance at the 31st Annual Special Achievement Award ceremony held November 8 at Lewis.

Individuals and groups were honored, sharing more than \$28,000 in monetary awards. Acting Director Dr. Bernard Lubarsky presented the awards.

Individuals receiving awards were Bill D. Ingle, Oliver W. Reese, Michael Baldizzi, Walter W. Ponevacs, Jr., Andrew Pindor, Fred J. Loost, Jr., Richard W. Niedzwiecki, Robert C. Seidel, Michael F. Valerino, John F. Cassidy, James P. Cusick, Daniel L. Deadmore, Norman W. Orth and Ira T. Myers.

Other individual award recipients were William T. Harrigill, Jr., James L. Morgan, Walter M. Krawczonek, Dr. Marvin E. Goldstein, Ralph A. Jacko, George W. Hirsch, Mike Chopich, Harry C. Craddock, Harold L. Weitzel, Ralph F. Jocke, Sadako U. Kinter, William H. Stokes, Jr., Mike A. Minichiollo, James E. Keaton, William H. Glaser, Paul J. Sirocky, Jr., Erwin M. Laufer, Carl F. Monnin, John P. Riehl, George J. Schaefer, jr., Richard P. Geye, and William K. Tabata.

GROUP ACHIEVEMENT AWARDS

Photovoltaic Power Group: William J. Bifano, William A. Poley and Larry R. Scudder.

Rocket Engine Test Facility Group: Edward M. Krawczonek, James P. Gerold, Wendell White, Kenneth R. Whitney, Merlin E. Vance, Dennis A. Munson, Thomas B. Schneider, George O. Mack and Joseph S. Etzler.

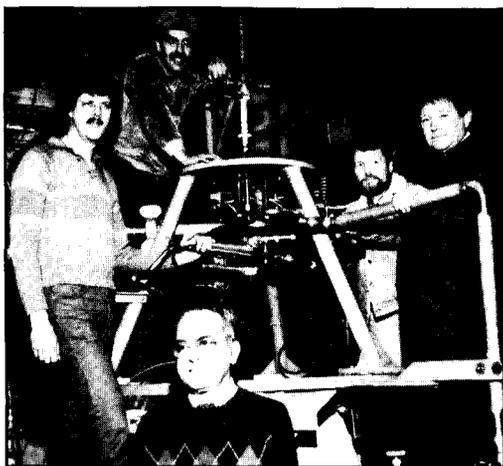
Equal Opportunity Recruiting Team: Harold Ferguson, Harrison Allen, Jr., Dr. Julian M. Earls, Genevieve M. Esgar, Orlando A. Gutierrez, George R. Kinney, Jr., Leroy McCreary, William E. Nyerges, Lonnie Reid, Loretta M. Shaw and Frederick F. Simon.

THRUST CHAMBERS

Major activities in the thrust chamber area are associated with enhancing the energy extraction from the propellants.



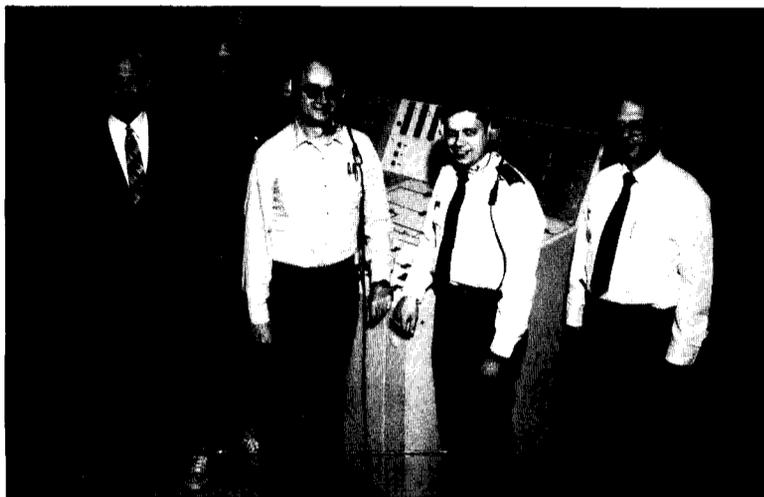
Standing, from left, George Repas, Harold Price and John Kazaroff, with Gary Halford (seated left) and Al Pavli are concerned with combustion chamber materials and chamber wall cooling.



Combustion chamber wall coatings evaluation is conducted at the "South 40" Rocket Engine Test Facility by (clockwise from 6 o'clock) John Kazaroff, Dennis Thompson, Bob Palaez, Clarence Wem, George Repas.



And (from left) by Jim Coy, Harry Jantz, Bill Lucas, Joe Romano, Harold Bulger, Bob Collins, Dick Kajack, Gary Faldon, Tom Dilling and Milan Jopek.



Facility operation and test monitoring is conducted in the ROB Control Room by Wayne Thomas, (left), Wendall White, Ed Krawczonek, Mark Klem, Dick Quentmeyer.



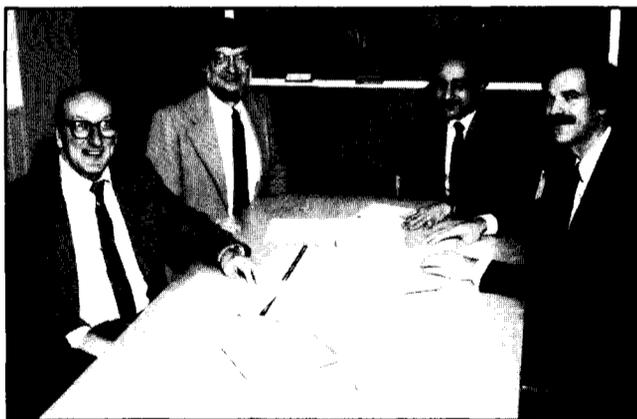
And by (seated l-r) Neal Wingenfeld, Joe Etzler, and (standing l-r) Jim Giomini and Terrell Jansen.

PROGRAM MANAGEMENT

These people are involved in SSME and OTV programs.



From left Greg Reck, Jody Getz, Don Petrash and Sol Gorland.



From left Pete Wanhainen, Carl Aukerman, Sol Gorland and Greg Reck.



Debbie Ryan Rachul (left) was the coordinator for the OTV Propulsion Conference held in the DEB on April 3-4, 1984. Donna Sexton of Martin Marietta Denver Aerospace spoke at the dinner about the Manned Maneuver Unit used for the Solar Max repair on the recent Shuttle flight.

PROCUREMENT



The OTV has a number of large contracts handled by this group: (from left), Shirley Boyer, Reggie Paginton, Tony Long, Larry Cooper, Fran Driscoll, and Dori Sharp.



These are the people who handle the contracts and grants for the SSME program. From left, Kurt Brocone, Mary Kovach, Boyd Bane, Willie Fleming, Tony Long, Glen Williams and Sol Gorland.



Awareness photos by John Marton.
Design and artwork by Charles Meyers.
Team Leads: Marty Braun, Stan Marsik, Larry Cooper.

LewisNews

Space Act Awards Given To Inventors Of Rocket Altitude Test Facility

NASA Administrator Dr. James Fletcher recently granted Space Act Awards of \$10,000 each to Lewis retiree Anthony Fortini and the estate of Vearl Huff in recognition of the scientific and technical contributions Fortini and Huff made to the Rocket Engine Test Facility.

Dr. Fletcher granted the awards based on the recommendations of the NASA Inventions and Contributions Board in accordance with provisions of the National Space Act of 1958.

Widely Used Facility Saved Costs

In the mid-1950's Fortini and Huff invented a rocket testing facility which uses the engine being tested to create its own high altitude environment. Rocket engine altitude test facilities using their concept were instrumental in the development of the RL-10 engine for the Centaur rocket, the J-2 engine for the Saturn rocket, and the Space Shuttle Main Engine.

The rocket engine altitude test facility basically is a capsule which encloses the engine and provides an outlet for its exhaust through an ejector tube. As the engine exhaust passes through the ejector tube, air molecules are also pulled out, reducing pressure in the capsule until it equals that found at high altitudes.

Because it eliminated the need for large, tank-type altitude chambers in rocket engine testing, the concept saved millions of dollars in capital investment.

After Fortini and Huff built a model at Lewis to demonstrate the feasibility of their rocket altitude test facility, full-scale facilities were built at many rocket test facilities throughout the industry.

A rocket altitude test stand using Fortini and Huff's concept

was added to Lewis' Rocket Engine Test Facility in 1983 and is currently being used for advanced rocket technology research.

According to Fortini, the concept of a rocket engine altitude test facility originated in 1954 when researchers were seeking ways to calculate ballistic trajectories of rockets and determine design parameters for correction. Huff and Fortini proposed developing the new facility because testing rocket engines in the Center's existing altitude tanks and test facilities was considered too dangerous.

From Aircraft Mechanic To Inventor

Fortini began his career at Lewis in 1943 as an apprentice aircraft mechanic. After serving in the Air Force and earning bachelor's and master's degrees in aeronautical engineering from Purdue University, Fortini worked at Lewis from 1953 until his retirement in 1980. He currently lives in Seattle, WA.

Huff, an electrical engineering graduate of Kansas State University, was a member of the original Lewis construction group assembled at Langley before the Cleveland site was selected. He moved to Cleveland when construction got underway in 1941. When the electrical distribution system for the Center was completed, he began ignition research on piston engines and later on jet and rocket engines. He remained at Lewis until 1963, when he transferred to Headquarters to work on Project Apollo.

Huff and Fortini were first recognized for their invention in 1963, when they shared a \$500 award. The \$10,000 awards were granted as the result of a Space Act Award application Fortini submitted in 1986.



Anthony Fortini (seated, right) and his wife Lorene display the Space Act Award certificate signed by NASA Administrator Dr. James Fletcher. During a recent visit to Lewis, Mr. Fortini was congratulated for winning the award by Center Director Dr. John Klineberg (standing, left) and Deput Director Larry Ross (standing, right).

In Memory

Douglas Bewley, 46, passed away suddenly November 30. Bewley worked for



Bewley

10 years at Glenn as a civil servant providing engineering support to the Rocket Engine Test Facility (RETF) in the South 40, and had been working with QSS Group since 2001 on the relocation of the South 40 facilities as part of the Airport Expansion Project. He was recently ordained as a deacon at the Assumption of Mary

Catholic Church in Brook Park. Bewley leaves behind his wife, Kathy, and 8 children, as well as many friends here at Glenn. A fund has been set up for the family under the "Douglas P. Bewley Family Fund." Donations can be made at any Key Bank branch office.

Joseph Kloscak, 85, recently died. He retired in 1975 after 30 years of NASA service. Kloscak served as a warehouse leader. He is survived by his wife, Gladys Kloscak, who also worked at the Center until 1974.

Eugene McIrvn, 67, recently died. McIrvn retired in 1990 with 33 1/2 years of NASA service. He served as an electronics technician.

In Memory

Tadeusz Guzik, 79, who retired with 33 years of Government service in 1979, recently died. Guzik served as a model fabrication manager for the Fabrication Division.

George Repas, 65, who retired with 35 years of Government service, including 31 to NASA until 1995, recently died. Although he was employed as an aerospace engineer at the Lab and gave his all for the Agency, Repas also offered his boundless energy to the local community.

Repas' name is listed on the National Wall of Honor at Dulles International Airport, Reston, VA, for his contributions to the aerospace

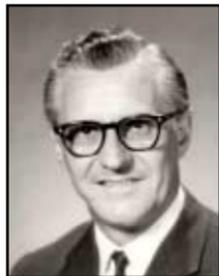


Repas

industry, including design, fabrication, and installation of complex chemical propulsion test hardware, in addition to his engineering assistance to the U.S. Department of Defense. He was one of the test engineers who brought fame to the Cleveland Center's Rocket Engine Test Facility, a historic monument that had to be demolished last summer for Cleveland Hopkin's Airport expansion.

More recently, Repas supported Glenn's Space Combustion and Microgravity Test Engineering Branch as a part-time employee of QSS, an onsite contractor providing test engine services, and mentored many of the new hires. He also consulted on the major renovation of Purdue University's Rocket Lab, a one-of-a-kind-propulsion facility, to perform full-scale testing for NASA, the U.S. Air Force and U.S. Army, and other Federal agencies and aerospace companies.

Perhaps Repas' friends will remember him most of all for the enthusiasm, creativity, and talent that he lavished on the Center's Children's Holiday Show for more than 30 years. He served as organizer and chairperson, wrote plays, organized practices, encouraged other participants, decorated sets, sang, and contributed all the other intangible things that went into creating magic and lifetime memories for Center employees, their families, and guests.



Guzik

Thomas E. Cowell, 66, who retired in 1996 with 16 years of federal service, died Aug. 21. Cowell was a U.S. Air Force veteran of the Vietnam War who joined the NASA workforce as a photographer. He served as a member of the Photolab & Illustrations Team, Technical Information and Services Division. Cowell was also a performing tenor with the Cleveland Orchestra Chorus and the Cleveland Opera Theatre Ensemble.

Eugene “Gene” Krawczonek, who retired from NASA in 1988 with 33 years of federal service, died July 27. Krawczonek joined NASA in 1955 from the Naval Ordnance Department (Calif.) He began working as an operations engineer on installation of the Rocket Engine Test Facility, where he worked the bulk of his career. Krawczonek

was a former chief of the Engineering Operations Branch, Chemical Propulsion Division.

S. Stanford Manson, 93, who retired in 1974 with 32 years of NASA service, died July 7. Manson was a metals researcher whose decades-old formulas are still in use to predict metal fatigue on Earth and in space. He transferred from NACA Langley to NACA Lewis in 1943. He wrote several books and helped discover the Manson-Coffin Law and the Manson-Hirschberg Method of Universal Slopes—findings crucial to space engines and heat shields. Manson retired as Materials and Structures Division chief.

Lee Harold Wagner, 94, who retired in 1988 with 31 years of federal service, died Aug. 15. Wagner began his

Army/Air Force having served during World War II and the Korean conflict. He began his NASA career working at the Plum Brook Station (PBS) in 1961. He served in the PBS Facilities Division as head of the Thermocouple Unit for experimental aviation and later, head of the Research Instrumentation Unit. In 1973, he transferred to Lewis Field's Instrumentation Branch, Fabrication Division, for 2 years before retirement.

Edward M. Krawczonek, Sr., 81, who retired in 1988 with 38 years of federal service, died Jan. 23. Krawczonek was a U.S. Army Veteran, who joined the NACA/NASA workforce as an



Krawczonek

apprentice in 1949. He became an aerospace mechanic and dedicated member of the Test Installations Division. He largely supported the Materials and Rockets Branch that provided technical support to various research divisions ranging from rocket engine testing to processing submicron powder used for producing new materials. He also helped set up, operate and maintain research equipment for major lab activities, such as converting the environmental chamber in the Rocket Engine Test Facility. He was one of four Krawczonek's working at Lewis in the 1960s. His is survived by his brothers Walter and Eugene, who are NASA retirees.