SPACEPORT NEWS

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SATURN SCHEDULE TO BE STREAMLINED

NASA has announced a rephasing of manned flight missions among the Saturn 1-B, and the Saturn V.

Principal changes in planned manned flight missions include acceleration of the Saturn 1B/Apollo spacecraft phase and deletion of four previously scheduled Saturn I/Apollo spacecraft flights.

Engineering design and development effort related to the Saturn I manned flight programs.

Concentration of effort and resources on these phases of the manned lunar landing program is expected to increase the assurance of meeting Saturn I-B and Saturn V—based Apollo spacecraft milestones by taking advantage of the larger payload capability of the Saturn I-B. This will allow an earlier launch of an all systems lunar orbit configuration — command module, service module, and LEM,

In addition, it is now planned to begin Apollo manned flights using this secure configuration from the start to provide greater assurance of astronaut safety and successful completion of the manned orbital phase of the lunar landing mission.

Common Stages

The program of two Saturn vehicles, Saturn I/I-B and Saturn V, is based on the maximum use of common stages. The Saturn I, a two stage vehicle, capable of placing 11 tons in earth orbit, was to be used to test Apollo command and service modules.

The Saturn I-B is an uprated version of the Saturn I vehicle capable of placing 16 tons of earth orbit and will be

(See SATURN, Page 8)

OMSF Gets Realignment

NASA has realigned its Headquarters Office of Manned Space Flight to meet increasing demands of the United States' manned space effort. The realignment became effective Friday.

Dr. George E. Mueller, Associate Administrator for Manned Space Flight, has overall responsibility for the manned space program, including related activities at DC, the Marshall Space Flight Center, and the Manned Spacecraft Center.

George M. Low will be Deputy Associate Administrator for Manned Space Flight.

Dr. Walter C. Williams, as Deputy Associate Administrator for Manned Space Flight Operations, will supervise flight operations for all manned space flight missions.

Three program offices will provide overall direction, control, and integration of the Apollo, Gemini, and Advanced Mission Programs for manned space flight. They are:

Apollo Program Office - Dr. George E. Mueller, Acting Director. The Director is responsible for all aspects of the Apollo program, including performance, cost, budget, schedule, design, test, and assurance of manned flight safety.

Gemini Program Office — George M. Low, Acting Direc-

(See OMSF, Page 6)

A TEST PILOT guides this weird-looking Lunar Research Vehicle toward a simulated moon landing. The "flying machine" is to be put through rigid tests at NASA's Langley Research Center.

Gold, Silver and Platinum

Mother Lode Rides With Space Vehicles

There's gold in them thar rockets. And silver, and platinum, and rhodium and nickel.

But, as the old saying goes, all that glitters isn't gold. There's chrome in there too, and copper and cadmium.

All the rare gold, silver and platinum used in each rocket is equivalent to that contained in the jewelry and silverware boxes of perhaps five average families.

These and other metals play key roles in the rocket program. None is used in great quantities, of course, but a little dab here and there makes a rocket work better, engineers say.

Take the gold for example. Some antenna and guidance system parts have been gold plated because gold resists corrosion — and a rocket often sits on the Cape for some time awaiting launch.

And, again frugally, some gold is used in printed circuitry because of its conductivity.

Gold has been used as an experiment on the tail shielding of a rocket to check the heat repellant characteristics of its

(See LODE, Page 8)

SPOTLIGHT

ARE YOU A 33 PER CENTER?

As the United Fund Drive goes into its final extended week, it appears once again that NASA will top its goal, which this year is $15,000.

But buried in the statistics are some unflattering facts.

Although the overall total will be reached, only two out of every three NASA employees will have contributed.

It's quite possible a good portion of the 33 per cent who haven't given anything at all have good reason for their action, or inaction.

Perhaps personal problems are pressing them financially, or they have special charities they contribute to, or maybe they don't believe in the principle of United Fund.

We believe it's everyones right to contribute or not to, but we can't help but wonder if there aren't a number of "33 per centers" who have no legitimate reasons for not giving.

Admittedly, the United Fund isn't the best possible way to collect for those in need, but it is considerably better than the old method of having a different drive for almost every week of the year.

And no one can deny the good UF money does — the boys it keeps off the street, the empty stomachs it fills, the crippled limbs it helps straighten.

No one is going to beat you over the head if you don't contribute, but if you are a 33 per center, we ask only that you give it a second thought.

Some day you may be in need yourself.

ON VETERANS DAY

On Veterans Day, November 11, our Nation looks two ways—backward to the war and postwar record of its 22 million living veterans and forward to the exacting task of preserving peace with honor.

It is an occasion to take special pride in membership in the Federal career service, for more than half of our Government's civilian workers are veterans.

Not only did they serve our Nation well in wartime as soldiers, sailors, marines, airmen, and coast guardsmen — through their public service as civilians they continue to give their day-to-day efforts to the attainment of vital national goals.

As both citizens and Federal employees we should honor on Veterans Day the men and women whose invaluable contributions and sacrifices have meant so much in defense of our Nation and maintenance of an honorable peace throughout the world.

Questionable Origin

There was a catchy ad in a recent NASA-AMR bulletin. It read, "free, kute kittens, eight weeks old, Persian mother, traveling father.

SPACEPORT NEWS

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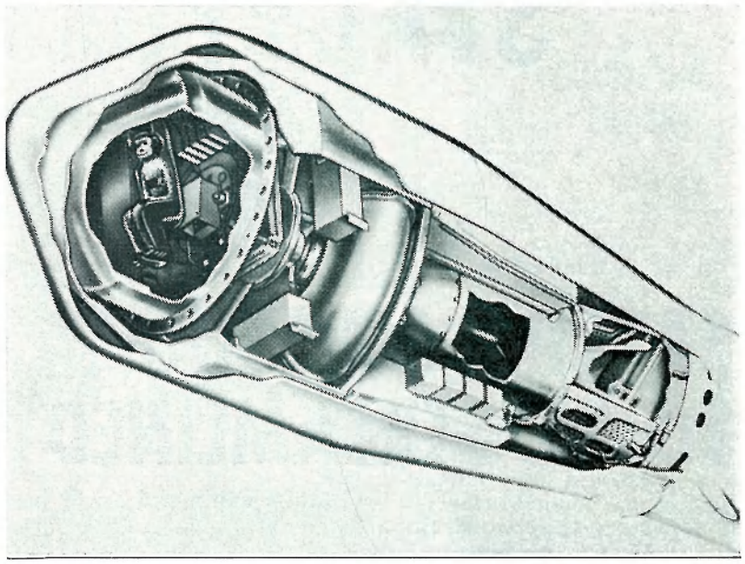


THIS IS an artist's drawing of a proposed biosatellite. A $19 million contract was awarded to GE for development, assembly and test of six 1,000-pound flight spacecraft plus ground support equipment. It is to be launched into a 200-mile high circular orbit by a Delta launch vehicle starting in 1965. Experiments will include effects of weightlessness on live tissue, effects on plants and animal specimens including primates in flights up to 30 days.

Pact Awarded To Develop Recoverable Biosatellites

NASA will negotiate with Missiles and Space Division, General Electric Company, Philadelphia, to develop a recoverable biosatellite system.

The contract, expected to amount to about $19 million, will be for development, assembly and test of six 1,000-pound flight spacecraft plus ground test spacecraft.

The schedule calls for each spacecraft, containing a number of biological experiments, to be launched into a 200 mile high circular orbit from Cape Canaveral by a Delta launch vehicle. First flight will be in 1965 with successive launches at three month intervals.

Dr. Homer Newell, director of the NASA Office of Space Sciences, said, "After some years of study and planning, we are now moving into the flight phase of our biosciences program. The space environment offers a unique opportunity to study the nature of living Earth organisms under conditions impossible to duplicate on Earth."

About 150 biosatellite scientific experiments have been submitted to NASA by leading biologists of the United States. Selection of flight experiments will be made by the Office of Space Sciences on recommendation of the Biosciences Subcommittee comprised of biologists from the universities as well as from NASA.

$19 Million Offer Made On Pad A

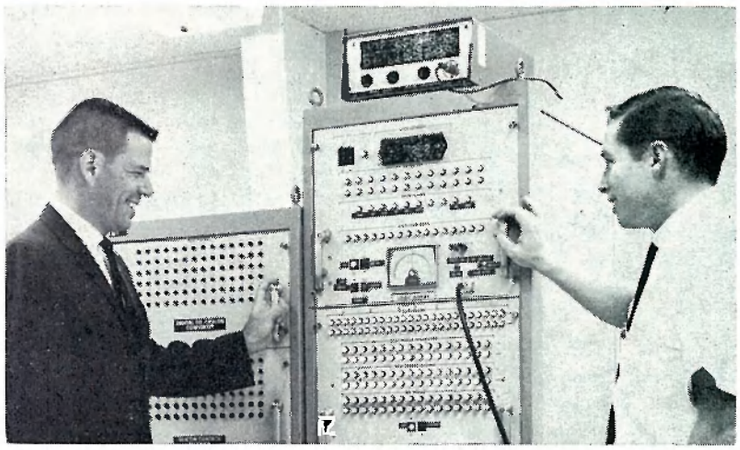
Two companies, acting in a joint venture, have offered to build Pad A on Launch Complex 39 for $19,138,000.

The proposal was made by the Blount Brothers Construction Co., Montgomery, Ala., and M. M. Sundt Construction Co., Tuscon, Ariz.

Their offer was the lowest of several received by the Corps of Engineers in Jacksonville, where the bids were opened Tuesday.

Pad A is one of two pads to be immediately constructed within MILA. The work also includes 90 per cent of the three-mile crawlerway leading from the VAB to the launch pad.

A contract for the work will be awarded after the proposals have been studied by the Engineers.



GARY WOODS, left, of MSC's Digital Test Command Systems Engineering section, and North American engineer Robert Anderson, inspect newly arrived PACE-S/C Up-Link prototype. The electronic brain will be used to stimulate Apollo spacecraft systems during checkout tests.

Dr. Debus Featured In October DATA Issue

NASA ground support systems are featured in the October issue of DATA magazine, a national publication of research and development management.

A color portrait of LOC Director, Dr. Kurt H. Debus, appears on the cover, and comprehensive interviews with Dr. Debus and with Robert Gray, Chief of Goddard's Field Projects Branch at the Cape, are highlighted in the magazine.

Beefed-up Thor Booster To Add Extra Thrust Kick

The Air Force-developed Thrust Augmented Thor will be added to the National Launch Vehicle Program as the booster for both the Agena and Delta vehicles in accord with an agreement between NASA and the Department of Defense.

In the new Thor configuration, three solid propellant rockets are strapped around the base of the Thor booster.

They ignite at launch along with the Thor stage engine to produce a total lift-off thrust of more than 330,000 pounds.

The solid strap-ons are Thiokol Chemical Company XM-33 rockets, each 31 inches in diameter and producing 54,000 pounds of thrust. This rocket is the second stage of the all-solid propellant Scout vehicle.

After burning about 40 seconds, the solid strap-ons are dropped off the Thor stage some 40 to 65 seconds after liftoff depending on range safety requirements, while the Thor engine continues powered flight.

Thrust Augmented Thor-Delta (TAD) will achieve a 20 to 30 per cent increase in capability over the Delta which is NASA's most reliable launch vehicle with 19 straight successes out of 20 missions.

For instance, TAD will be able to put about 1,000 pounds into Earth orbit compared with 800 pounds for Delta depending on specific trajectory and other mission requirements.

TAD is expected to make its first NASA flight in 1964. NASA will continue to use the Delta vehicle without thrust augmentation.

How To Read More In Less Time? It's Easy

Read any good books lately?

Chances are, if you're like most of us, there just don't seem to be enough hours in the day to get to that bestseller. You'd like to read more, but there's no time for it.

But what if you could increase your reading speed from 100 to 400 per cent or more. Then you could suddenly read two, three, four or maybe even 10 times as much in the same amount of time.

That's exactly what 40 NASA employees have done in the past few weeks — by taking a 30-hour Comprehensive Reading Improvement Program, offered through LOC's Training section.

The course, which ends tomorrow, is taught under a sub-contract to NASA by Wade H. Link.

"The average adult reads about 200 words a minute," Link says, "and he retains only about 50 per cent of that. After completing our program, most people can read in excess of 500 wpm, and retain from 70 to 100 per cent."

The basic principle in Link's class is to teach people to read in multiple word fixations — that is to perceive from two to six words with each glance instead on a single word at a time.

He listed four basic rules for improving one's reading speed:

1. Increase the number of words you see with each fixation.

2. Shorten the length of time it takes to fixate or perceive the words.

3. Eliminate regression—going back to reread passages. This is a bad habit caused by inattention.

4. Eliminate vocalization—that is speaking the words as you read them.

"We've had a few people — maybe one in 50 — read up to 3,000 words a minute," Link said, "and yet they've managed to retain more of what they read than a slower reader would. This is because they must concentrate thoroughly in order to attain such speeds."

By comparison President Kennedy, a noted speed reader, digests about 1,250 wpm.

Link's students are overly enthusiastic about the program. LaRue Hilmer, Deputy Chief of LOC's Financial Management Office, said, "it's been a complete revelation. I was astounded at my progress. The failure of most of us to comprehend our full potential is amazing. If they ever offer an advanced course I'd be keenly interested." Hilmer is one of the few in the 1,000-plus word per minute category.

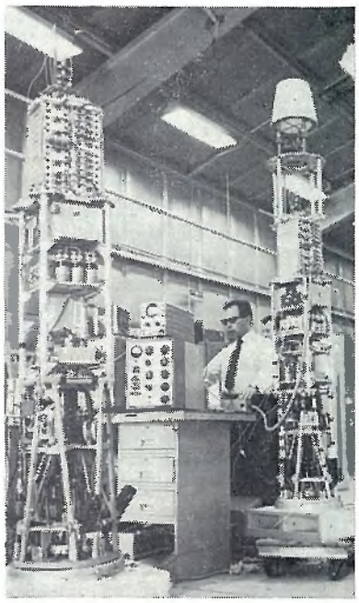
What types of material are read?

Link says everything from high interest material with a low difficulty level, to highly technical material with a lower interest level.

"We use the Reader's Digest a lot," Link said, "because it has an average of 500 words to a page, which is a good format to judge speed. It is also of overall general interest."

Want to check yourself?

There are approximately 460 words in this article. How long did it take you to read it?



FRENCH technician A. Sauvaget, tests transmitting equipment aboard the FR-1 ionosphere probe payload at Wallops Island. The equipment was launched as part of a joint France-U.S. space experiment.

UF DRIVE EXTENDED; NASA NEARING GOAL

With the lagging United Fund drive extended two weeks for tardy contributors, NASA's participation was more than 80 per cent as of Friday, toward the goal of $15,000.

Office Division Company	Amount Con'tb't'd or pledged	Partici-pation %
LO-A, Administration	$177.00	90%
LO-W, Auditors	50.00	100%
LO-V, Asst. Dir. Launch Veh. Oper.	988.00	32%
JPL Operations Div., 500000	567.30	100%
LO-GC, Legal Office	76.00	90%
LO-GF, Financial Management	452.50	100%
LO-GS Security	149.00	88%
LO-BA Base Operations	728.00	100%
LO-FA Facilities	1,104.00	97%
LO-GT, Technical Office	496.00	64%
LO-QA, Quality Control	140.00	100%
LO-NA, NASA Test Support Office	65.00	70%
LO-GH, Procurement and Contracts	697.50	92%
LO-GP, Personnel	555.00	100%
GSFC, 400000	644.00	75%
LO-RB2, Public Information	42.00	100%
LO-RP2, Protocol	63.00	100%
MSC, 830000	1935.50	51%
LO-RC2, Community Development	62.00	100%
LO-GR, Industrial Relations	22.00	100%
LO-GA Administrative Services	150.00	76%
LO-SA Safety Office	88.00	100%
LO-GM Management Analysis Office	242.00	100%
LO-GK Traffic Management	142.00	100%
LO-F Asst. Dir. Plans & Projs.	549.00	93%
LO-DA Launch Support Engr. Div.	150.00	100%
LO-LA Launch Supp. Oper. Div.	448.00	59%
LO-TA, Technical Staff	35.00	100%
LO-E, Asst. Dir. Instrumentation	956.50	83%
Brown Engineering, 916000	2650.00	82%
Economy Blueprint, 919000	216.00	24%
Management Services, 918000	218.00	12%

ROCKETRY PIONEERS TO GATHER

About 150 pioneers of rocket development — including several veteran Cape employees— will hold their third biennial reunion today and tomorrow at Huntsville.

Called the Fort Bliss (Texas) Oldtimers, it was this nucleus of about 240 rocket men who helped develop several of the nation's earliest rocket weapons and space vehicles.

The rocket experience of many of them dates back more than two decades and had its early beginnings in Germany during World War II.

Some of them come from Europe for the reunion and from points all over the United States.

Mechanics and scientists will rub elbows with ex-army sergeants and physicists. Nobody is in charge of the meeting and the group elected not to have a "head" table. By tradition, they don't have a speaker — they all talk.

They plan a get-together tonight at the Redstone Arsenal Officer's Club.

Tomorrow they plan to look at the latest space equipment at the Marshall Space Flight Center.

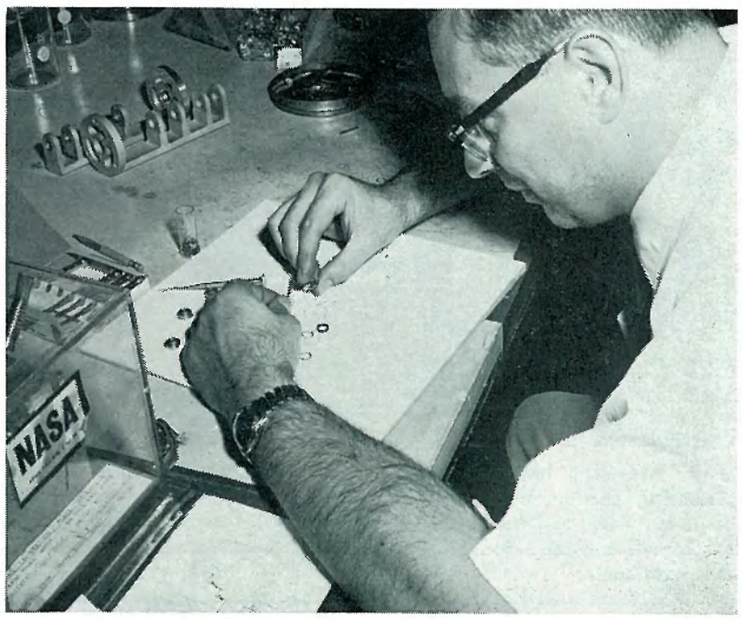
They will participate in an awards banquet with the American Institute of Aeronautics tomorrow evening. Many of them have received awards from the AIAA at previous meetings.

Among those attending from the Cape are: Dr. Kurt Debus, Dr. Hans Gruene, Carl Sendler, Albert Zeiler, Jose Gonzalez and, possibly, Dr. Adolph Knothe.

Kerns To Give Talk

U. Wright Kerns of the NASA Community Development Office, will be the principal speaker at the Kissimmee Chamber of Commerce annual banquet tonight.

Kissimmeee is the county seat of Osceola County, one of the seven counties considered part of the Cape Canaveral Impact Area.



AN ENGINEER at the Marshall Space Flight Center, Huntsville, Ala., examines the outer race (in right hand) of timely ball bearing used in testing dry film lubricants. The center has successfully tested a "plastic" retaining ring (in left hand) which allows the balls to "wipe off" from the retainer walls a thin film of material which acts as a lubricant. Unlike oil or grease, it does not evaporate in space.

No Greasy Kid Stuff

STUDY OF LUBRICANTS MAY CHANGE CONCEPTS

Scientists and engineers at the Marshall Space Flight Center were told a few years ago to, in effect, "grease that bearing but don't use grease." They succeeded.

Results of their search in "dry lubricants" for space rockets may change the way of thinking about lubricating bearings in such consumer items as washing machines, driers, lawn mowers, and automobiles.

Turbo-pump difficulties in ballistic missiles in flight above 110,000 feet altitude in the late fifties started the investigation. Conventional lubricants vaporized above that altitude.

The missile problem was solved quickly by sealing the gear box from the space environment. However, this did not solve the problem of satellite instrumentation bearings. Some early mechanical failures were traced to frozen bearings or gears.

Researchers decided to experiment with dry film lubricants. No liquids would be involved.

In bearings, some type of lubricant must provide a film to separate the metal balls from the metal races in which the balls rotate. Ordinarily, oil or grease does this to overcome the three basic problems: friction, short life, and vibration.

Graphite was quickly ruled out because it was found that without air it loses its lubricating qualities.

The problem apparently has been licked with a "plastic" retaining ring for the balls. It is a mixture of Teflon, glass laminate, and molybdenum disulfide.

The powdered mixture is formed into a solid and machined to suit the particular test purposes. Holes are drilled in the retaining ring to hold the balls between the inside and outside races.

As the balls turn they rub off enough of their plastic walls to coat themselves with a thin film of the dry material. This film keeps the metal balls separated from the metal races, prevents excessive wear and lengthens bearing life, and it does a good job of damping vibrations — the three basic requirements of a bearing lubricant.

CAR POOL CUT-UPS CHARACTERIZED

A great percentage of NASA employees ride to work every day via that twentieth century phenomenon known as the car pool.

In theory, this share-the-ride-and-cut-down-on-the-number-of-cars is a boon to all. In principle, however, it doesn't always work out as well as it looks on paper.

Like marriage, the car pool is a give and take situation where respect for the others should be a prime consideration.

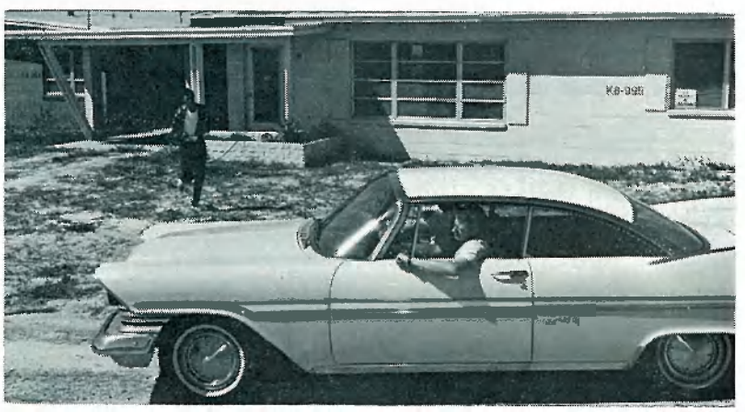
Here are a few tongue-in-check, though not too far-fetched car pool characters, enacted by NASA employees and photographed by Russ Hopkins.

Recognize any of the characterizations?

THE-HARRASSING-EARLY-MORNING-HAIR-DRESSER, acted out by Ann Barton, against defenseless driver Bill Wright, and rider Richard Tomolak, not only clutters the car with bobby pins, stray hair and a shower of dandruff, but also smudges the rear view mirror when she turns it her way. After the hair treatment comes the lipstick, perfume and eye shadow. She is the particular bane of white collar workers.

THE-STUFF-YOUR-STOMACH-SNACKER, portrayed here by Chuck Gadow, with innocent rider Frank Cavo eyeing him cautiously, usually balances a piping-hot cup of coffee and an over-buttered piece of toast on his way to work. He skillfully manages to hold his cup at the proper angle to spill it all over the freshly-pressed trousers of a co-rider at the first sharp turn of the wheel.

THE WRINKLE-RATTLING-PAPER-READER, is John Copeland, right, who poses a serious threat to driver James Joyner's visibility. Like an octopus spreading his tentacles, the paper-reader not only elbows his co-riders black and blue, but also becomes a bore by force feeding them the latest news tidbits.



THE-NEVER-ON-TIME-EXTRA-NAP-GRABBER is invariably five minutes late. He is noted for popping his half-shaven face out the door as you drive up, and shouting "be right there." If you leave the engine running while waiting, chances are you will need to stop at the service station when the radiator overheats. This carpool characterization is enacted by Pat Laird, above. Dave Glasser is the frustrated driver who left early to be on time.

BUM-A-RIDE-BUDDIES are Frank Putnam, left, and Chuck Burnell. They rarely give consideration to the driver's (Chuck Harrison) comfort. They just pile in, saying matter-of-factly, "Oh it's only a few miles out of your way, I know you won't mind," and then squeeze in to lock shoulders and make driving miserable..

OMSF ALIGNED

(Continued from Page 1)

tor. The Director is responsible for all aspects of the Gemini programs, including performance, cost, budget, schedule, design, test, and assurance of manned flight safety.

Advanced Manned Missions Program Office - E. Z. Gray, Director. He will be responsible for the coordination and control of studies in the areas of manned earth orbital missions, advanced manned lunar missions and manned planetary missions.

Three offices will be responsible for the coordination of general administration of the Office of Manned Space Flight and—at the Headquarters level—for the three principal centers involved. They are:

Center Development

Manned Space Flight Center Development - Robert F. Freitag, Director, responsible primarily for center resources needed to support continuing and future space flight programs.

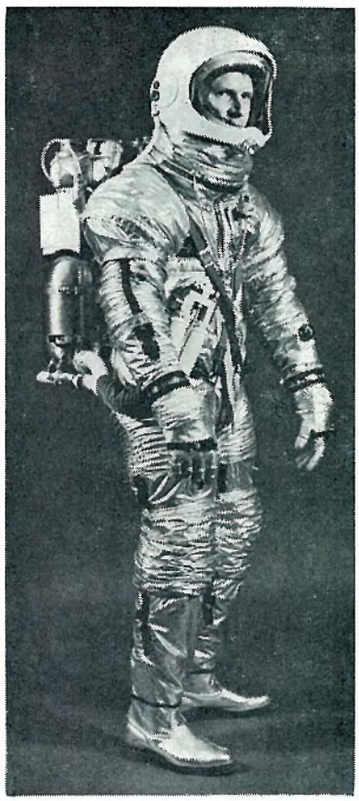
Manned Space Flight Program Control — William E. Lilly, Director, responsible for budgetary, financial, and facilities matters for the manned space flight program.

Manned Space Flight Management Operations - Clyde Bothmer, Director, responsible for procurement, personnel, and administrative aspects of the program.

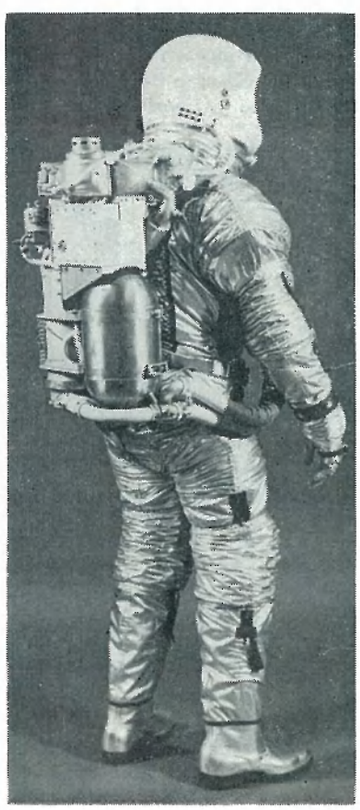
Four other offices complete the Office of Manned Space Flight: Manned Space Science Program Division of the Office of Space Sciences and Applications (NASA Headquarters), Dr. Verne C. Fryklund, Acting Director; Space Medicine, Dr. George M. Knauf, Acting Director; Public Affairs Officer (vacant); and Legal Adviser, James E. Riley.

Paul E. Cotton will serve as Executive Assistant to the Associate Administrator and the Deputy Associate Administrator.

Bellcomm, a subsidiary of the American Telephone and Telegraph Company, continues to provide systems engineering services to NASA for the manned space flight program. Dr. John A. Hornbeck is President.



GEARED for a four-hour stroll on the lunar surface is this model, wearing a prototype of the space suit and life support pack being developed for the Apollo program by the Hamilton Standard division of United Aircraft. Rubber bellows at the joints of arms, legs and torso provide greatly increased mobility when the suit is pressurized.



6-Month-Old Credit Union Expects 500th Member Soon

The NASA-MILA Federal Credit Union, now in its sixth month of operation, has extended over $50,000 in loans and will soon be 500 members strong.

Sam Mayo, head of the Industrial Security Section, who is the Credit Union's first president, expressed satisfaction this week at the organization's progress.

"We're healthy," he said, "and we're growing. We had a projected goal of $60,000 in loans by the first of December, and now it looks as if we'll go over that."

Mayo attributed the organization's growth "to the unusually fine support we've had from many people here who, as volunteers have given much time and effort to the organization and direction of the Credit Union. It has only one salaried clerical position at present, Mayo said.

Audits by a federal examiner in September and by the union's own supervisory committee. last month found the union to be in excellent condition, Mayo explained. "Not only have we had no losses," he said, "but we haven't even run into any delinquent accounts."

Open to all NASA personnel, the Credit Union was designed to promote thrift. Its supervisory personnel expect to be able to declare a substantial dividend at year's end.

Advantages of a membership in the Credit Union include the ability to obtain loans conveniently at low rates, dividends paid on deposits, the privilege of cashing pay checks on pay day and small personal checks on an emergency basis. Many members, Mayo said, have found it economical to consolidate small debts and thus make only one payment, lowering considerably the total amount of interest paid.

The rate of interest is less than one third the legal rate charged by small loan companies throughout Florida.

Material Support Announces Births

Material Support Branch employees may have set a new record with five recent birth announcements in the span of 12 days.

The statistical rundown:

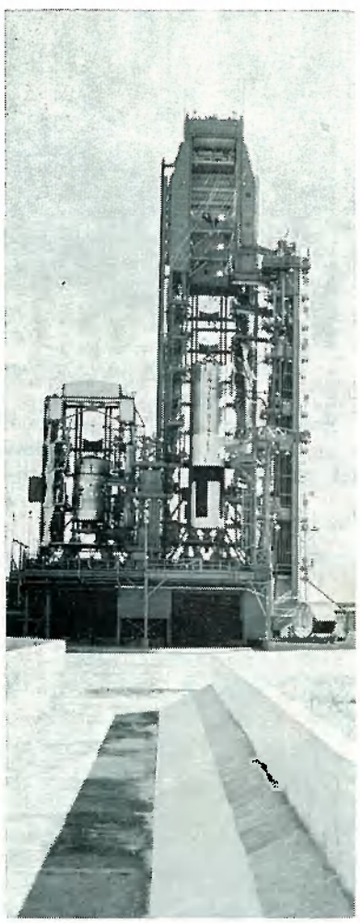
September 26 — a five pound, nine ounce boy, Bennett Gibert, to Mr. and Mrs. Bill Johnson.

September 29 — A ten pound, 12 ounce girl, Melinda Jane, to Mr. and Mrs. Merele Dempsey.

October 2 — A six pound, one ounce girl, Yvette, to Mr. and Mrs. Bill Coble.

October 4 — A five pound, nine ounce girl, Angela Denise, to Mr. and Mrs. John Osuch.

October 7—A seven pound, 12 ounce girl, Elizabeth Renee, to Mr. and Mrs. Greg Casper.



SNUGGLED SECURELY in its service structure on pad 19, the first Titan II-Gemini vehicle is currently undergoing preliminary checkout tests for its flight, scheduled after the first of the year.

HERE THEY ARE — the 14 newly appointed astronauts. Standing left to right are: Michael Collins, R. Walter Cunningham, Donn F. Eisels, Theodore C. Freeman, Richard F. Gordon, Jr., Russell L. Schweickart, David R. Scott and Clifton C. Williams, Jr. (the only bachelor among the 30 astronauts). Seated left to right are: Edwin E. Aldrin, Jr., William A. Anders, Charles A. Bassett II, Alan L. Bean, Eugene A. Carman and Roger B. Chaffee.

SCIENCE STUDENTS RECEIVE BRIEFINGS, SUBMIT PAPERS FOR JUDGING BY NASA

Twenty-five outstanding science students from high schools throughout the country were guests of LOC last week as part of a program of Regional Science Congresses.

The students were briefed by representatives of the National Science Teachers Association, co-sponsors of the program; and NASA officials.

Presentation of scientific papers written by the students was made Friday. The papers were judged by Joe Robertson, Saturn Project Office, Miss Janie Callahan, LOC mathematician and Lt. Col. William Douglas, former Project Mercury physician.

Awards for outstanding papers were presented Saturday. Subjects spanned the spectrum of space sciences.

The visiting students were given a tour of facilities at Cape Canaveral during the Congress and met with personnel engaged in work in the field of space.

The purpose of the Congresses is to stimulate the interest of a highly select group of talented secondary school students in the space sciences.

The Congresses will give the students opportunities to discuss their scientific interests with NASA's practicing engineers and scientists.

Later, outstanding students who participated in the regional Congresses will present their papers at a National Congress to be held at NASA headquarters in Washington.

Lowell Observatory Receives NASA Grant

The Lowell Observatory, Flagstaff, Arizona, will receive $236,520 from NASA to help establish a facility for lunar and planetary scientific research.

The International Astronomical Union requested Lowell in August 1961, to establish for the Western Hemisphere a repository of lunar and planetary research materials — particularly photographs. The Eastern Hemisphere center is at the Meudon, France, observatory.

The NASA grant will provide a building at the Observatory site for photographic processing, storage and research.

DEER ME, what have we here? Frank Byrne, stationed at a satellite tracking site on the Cape, captured this two-year-old, 10-point buck last week as it approached a water hole. The animal, a little under the weather, was turned over to a state wildlife officer.

ENGINEERS TO HEAR HART

Charles Hart of the Saturn V Project Office will speak to the American Society of Mechanical Engineers next Wednesday night at the Ramada Inn. His topic: "NASA's role in the operation of the Vertical Assembly Building." All interested persons are invited to attend.

NEW DELTA PACT FOR MORE VEHICLES TO BE NEGOTIATED

NASA will negotiate with Douglas Aircraft Company, Santa Monica, California, to renew a contract for launch of Delta space vehicles during 1964.

Douglas developed the Thor-boosted Delta and, under the direction of the Goddard Space Flight Center's Field Projects Branch, has achieved a record of 19 consecutive successful launches over the past 38 months.

This contract, estimated to cost more than $5 million for the 12 month period, calls for inspection, assembly, check out, and launch of Deltas at Cape Canaveral's Complex 17. It calls for a launch rate capability of one vehicle per month during 1964.

Under current contracts, NASA has 20 Deltas on order in addition to 20 already launched.

Delta, started in 1959, has been NASA's workhorse vehicle, having launched TIROS, Echo, Telstar, Relay, Orbiting Solar Observatory I, and several Explorer series scientific satellites.

SATURN SCHEDULE

(Continued from Page 1)

used to test the complete lunar orbit configuration of Apollo—the command module, service module and lunar excursion module (LEM).

The Saturn I-B uses the same first stage as Saturn I. Its second stage, the S-IVB, which replaces the 15,000 pound thrust engine on the S-IV with a 200,000 pound thrust engine, is also the third stage of the Saturn V, the vehicle which will carry the astronauts on their lunar mission.

The decision to rephase the Saturn based manned flight missions, based on studies initiated several months ago, was made possible by the success of the first four Saturn I launchings, the successful ground tests of the liquid hydrogen stages and the J-2 engine.

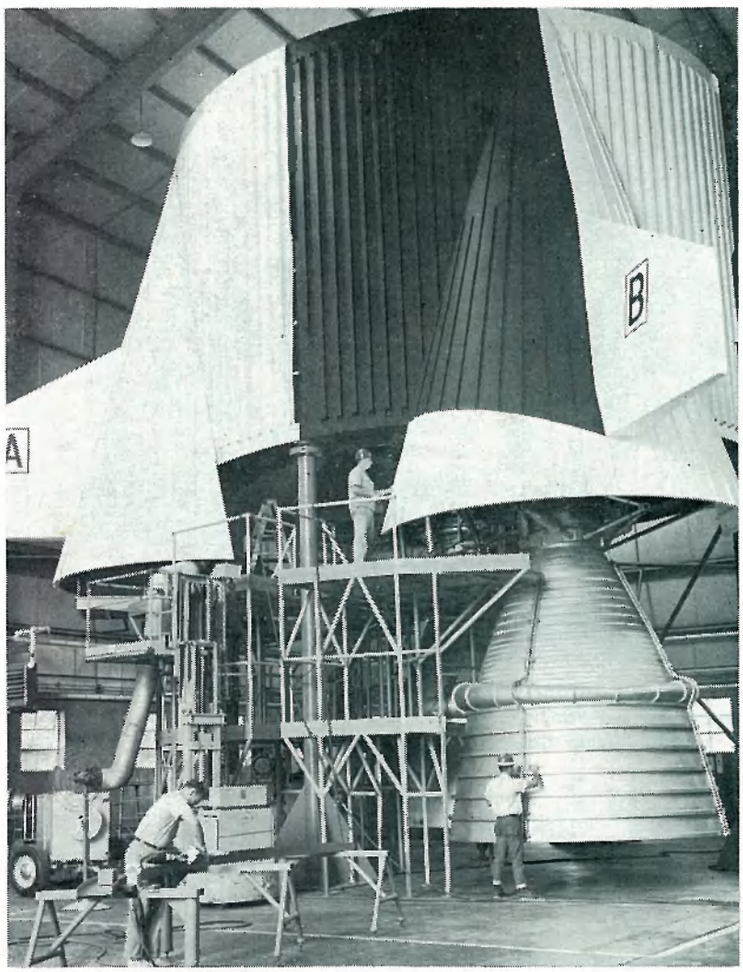
The decision also permits the introduction of a flight test concept designed to result in an otherwise time saving—the so called concept of "all up testing." In this approach launch vehicle stages and spacecraft modules are tested in the final configuration of each flight.

Previous planning had called for a gradual build up of sub systems, systems stages and module in successive flight tests. Experience in other missile and space programs have demonstrated that "all up-testing" is the quickest way of reaching final mission objectives.

The six remaining Saturn I development flights will be carried out to provide vehicle development data essential to the Saturn I-B and Saturn V programs as well as to take important information on micro meteoroids.

Although the cancellation of Saturn I based manned Apollo flights results in a later (9 months) first flight of a manned orbital Apollo, the on going Gemini program will provide the astronauts with the flight operations experience that otherwise would have been gained from the Apollo/Saturn I mission.

Moreover, deletion of the Apollo/Saturn I manned flights saves $15 million dollars and is a step which helps NASA to stay within the $5.35 billion authorized for Fiscal Year 1964.



THE SIZE of the 350-foot-tall Saturn V moon rocket is illustrated by this "soft" mockup of the thrust structure, or "business end," of the S-IC stage nearing completion at NASA's Marshall Space Flight Center. The booster, 33 feet in diameter and 138 feet long, will be powered by five F-1 engines developing 7.5 million pounds thrust to start the monstrous vehicle on its journey into space. Two mock engines are shown mounted beneath the thrust structure.

Mother Lode

(Continued from Page 1)

shiny surface.

Small wind tunnel models of Saturn are chrome-plated to make a smooth hard surface and gives the little models an appearance something like the hood ornament on some automobiles.

Very little chrome is used on rockets, however, because of the weight.

Gold is added by the ounce to the eight gallon plating tanks. Engineers and scientists determine what is to be plated. Recently the section plated a small locking pin less than half the length of a straight pin and made of stainless steel.

The basic plating for rockets is cadmium, and anodizing. Cadmium will resist salt spray about 3,000 hours.

Dear Sir:

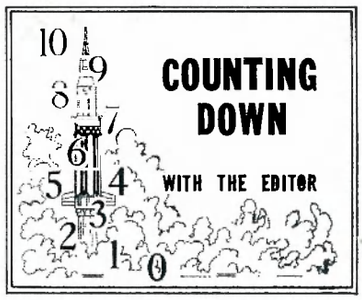
Do you have to have a permit to send up a rocket?

Dana R.
Sunnyvale, Calif.

NASA NEWCOMERS

Five new employees have joined local NASA offices in the past few days. They are:

Fred Broadway, Elmer Hatter, Bruce Jansen, John Thomas and George Weimar.



Veterans Day, next Monday has been officially designated to honor the millions of men and women who have served in our country's armed forces, and is an appropriate time to salute the 54 percent of Federal employees in this country and 51 percent worldwide who are veterans. They number nearly 1.3 million, serving at every level and in every occupation in the career service.

Speaking of Veterans Day, here are some interesting facts about the Medal of Honor — the highest award to those who served in battle with the enemy.

Of the 50 million veterans since 1862, only 3,154 have won it.

The only civilian to win it was Charles Lindbergh—for making the first non-stop trans-atlantic plane flight. General Douglas MacArthur is the only Medal-winning son of a Medal-winning father. General Arthur MacArthur won the Medal for bravery at Missionary Ridge in the battle of Gettysburg.

Materially, the Medal is worth about $3. Winners of it who make the military life their career, receive a monthly pension of $120 extra when they retire.

The Civil War produced both the largest number of winners — 2,438, and the youngest winner, 14-year-old William Horsfall, who dashed into heavy gunfire to rescue his wounded commander.

Perhaps the most famous of all Medal of Honor winners is Sergeant Alvin York, who killed dozens of Germans and captured 132 of them single-handedly in World War I.

Unlike lesser awards, the Medal of Honor is not pinned to the chest, but is hung around the neck on a blue star-studded ribbon or, more often, signified by a modest light-blue cloth bar.

On civilian clothes the Medal is represented by a lapel rosette of light-blue silk with 13 stars.