



FARE WELL GORDO, PETE

Astronauts Gordon Cooper and Charles Conrad were scheduled to begin their recording-setting eight-day orbital flight this morning following liftoff in their Gemini 5 spacecraft at Launch Complex 19.

A full duration mission would achieve the longest manned space flight to date. Mission time for Gemini 5 will be about 191 hours and 53 minutes during which it will complete 121 revolutions of the Earth.

Landing is planned a week from tomorrow at the beginning of the 122nd revolution about 500 miles southwest of Bermuda in the West Atlantic Ocean.

Primary objectives of the mission are:

- Demonstrate and evaluate the performance of the Gemini spacecraft for a period of eight days.

- Evaluate the performance of the rendezvous guidance and navigation system using the radar evaluation pod.

- Evaluate the efforts of prolonged exposure to the

(See FARE, Page 4)

Flu Shots Available

Kennedy Space Center Director, Dr. Kurt H. Debus, has urged all KSC employees to participate in a flu shot program to begin around September 1.

"The President of the United States recently emphasized that 'good health and good work go together,'" Dr Debus said this week in a memo to KSC employees.

"I am particularly interested in preventing illness and lost time due to flu during the few months when the performance of your job is so im-

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Gemini 5 pilots Charles Conrad and Gordon Cooper



ACCURATE weather forecasting is vital to manned space flight operations. Here, KSC Weather Bureau Chief Ernest Amman inspects incoming weather maps on map facsimile machine.

VETERAN METEOROLOGIST IS KEY FORECASTER

Veteran meteorologist Ernest A. Amman, Chief of the U. S. Weather Bureau's Kennedy Space Center office, has impressive credentials.

A native of Naponee, Neb., he graduated from Hastings College in 1938 with a degree in education and mathematics. He joined the Weather Bureau in 1941.

Accepting a commission as an ensign in the Navy in 1942, Amman studied meteorology at UCLA before joining a blimp unit in Brazil. After two years in South America, he was reassigned, and later discharged in 1946.

Returning to the Weather Bureau, Amman operated out of the Bureau's Seattle office until the Korean conflict required his return to active duty. Serving as meteorological officer on the USS Rendova, an escort carrier assigned to the Seventh Fleet, he saw action in the Yellow

Sea. He is now a commander in the Naval Reserve.

Since his return to civilian life, Amman has also held posts with the Weather Bureau's Honolulu and San Francisco offices. With the formation of the Project Mercury Support Group—the forerunner of the National Meteorological Satellite Center—in 1960, he was selected to organize and head the Bureau's KSC office. In this capacity, he has been an important figure in every manned space mission to date.

Amman's group accurately forecast good weather for February 20, 1962, the launch date of John Glenn's historic orbital flight. The date was one of only three days that the weather conditions met the minimum requirements for launch.

Amman resides in Cocoa Beach with his wife and three children.

Weather Has Big Role In Launch Operations

"There will be optimum conditions over the launch area and primary recovery points for the next 48 to 72 hours."

This sounds like a simple statement of fact. But before Ernie Amman, Chief of the U. S. Weather Bureau's office at the Kennedy Space Center, can advise the Launch Director of the weather conditions for a launch, many skilled weathermen are on the job assembling data and making forecasts. They use the most advanced forecasting techniques available, including data obtained from TIROS weather satellites.

The Weather Bureau's Spaceflight Meteorology Group has the overall responsibility to supply NASA's manned spaceflight program with required weather information.

While the group's Washington unit specializes in planning and long-range programs such as feasibility studies on the uses of orbiting laboratories, the field units at KSC, the Manned Spacecraft Center, Houston, and the Mississippi Test Facility support local operations.

Capsule flotation tests in the Gulf of Mexico depend heavily upon accurate weather data, as do parachute drop tests in Texas.

At the Kennedy Space Center many varied and unusual functions are affected by the weather. The opening of the high bay doors on the Vehicle Assembly Building, ground tests, movement of barges and vehicles and advising the fire department of conditions for issuance of fire permits are just a few examples.

Two weeks prior to a manned space mission, the local office swings into high gear. While Amman concentrates on daily briefings of the astronauts, weathermen Harlen Higgins, Richard Siler and Dave Thornton assemble and maintain the worldwide weather charts that will warn the range tracking ships and stations of any serious problems affecting their phase of the mission. A hurricane in the Atlantic or a typhoon in the Pacific could conceivably

disrupt a launch schedule by as much as two weeks.

At T minus five days, and continuing throughout the mission, forecasts for the launch and landing areas are issued to key personnel. These forecasts also are included in the public releases given at the press center.

During the final weather briefing on the morning of the launch, weather bureau personnel supply the astronauts with maps showing the weather for the initial 24-hour period of their journey and information on the effects of weather conditions on the many varied experiments to be conducted.

Although the control of an orbital mission shifts to the Mission Control Center, Houston, KSC's weathermen aren't done. The operation of the Atlantic recovery areas is coordinated at KSC. Weather forecasts for these areas are compiled at the local office.

Echo I Five Years Old

The most often seen satellite to millions of the world's people—the big silver colored balloon communications satellite, Echo I—is five years old. But the years and space have been hard on her and even though she'll continue for sometime to brighten hearts and the sky nightly, her future is considered dim.

A pretty baby at her birth on August 12, 1960, when she was put into orbit from Cape Kennedy, Florida, she's since been treated like a naughty youngster by her big gravitational parents, the sun and the Earth, who have pushed her away from home to play in space backyards ranging from a few hundred to more than a thousand miles above Earth.

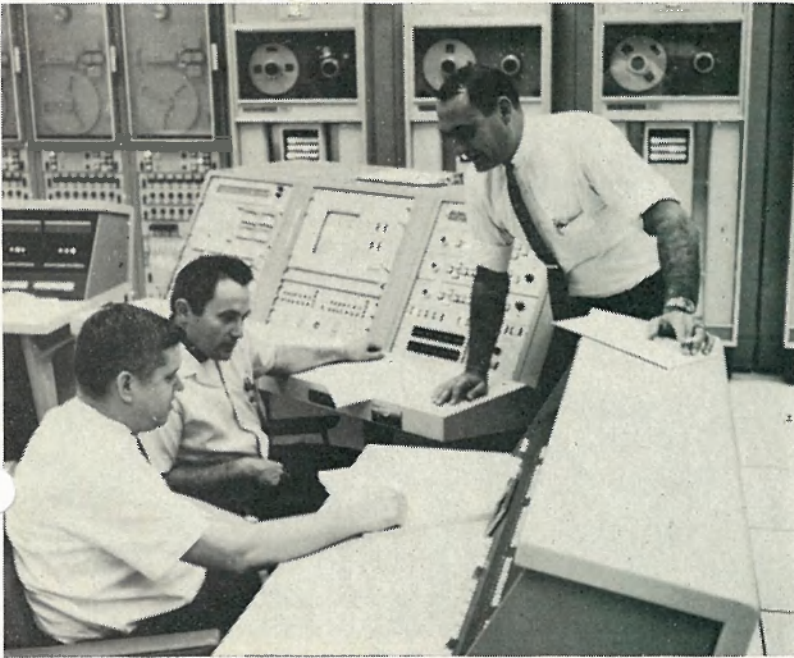
Her orbital period is gradually shortening as she dips in and out of the Earth's upper atmosphere. Eventually, and whether it will come next year, or the next, or 20 years from now she will reenter the atmosphere.

SPACEPORT



NEWS

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John W. King, Chief, Public Information Office
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NASA's Dave Perreton, center, and Abraham White, left, and Alex Stavache of GE check second of four Apollo spacecraft test stations declared operational by KSC engineers.

SECOND ACE-SC STATION DECLARED OPERATIONAL

The second of four Apollo spacecraft test stations has been declared operational by Kennedy Space Center engineers.

These first two stations will be used for preflight acceptance testing of the Apollo spacecraft command and service modules.

Two more stations, to be installed later, will be used for preflight acceptance testing of the Apollo spacecraft lunar excursion module.

Called Acceptance Checkout Equipment for Spacecraft (ACE-S/C), the station was conceived and designed by NASA engineers to provide a high speed, accurate, and reliable system for testing sophisticated spaceflight vehicles such as the three-man Apollo spacecraft.

The test station allows a relatively small engineering staff to continually review more than 25,600 spacecraft test samples per second. This system monitors approximately 1,500 spacecraft operational parameters.

Consisting of high-speed computers, display consoles, and recording equipment, ACE-S/C interrogates the spacecraft systems and automatically gathers, processes, evaluates, and displays the

test data in split seconds for evaluation and diagnosis by test engineers. Data is also recorded and stored for future analysis.

The ACE-S/C station has been undergoing verification operations by engineers from NASA, the system's prime contractor, General Electric Co., and associate contractors Central Data Corp. and Radiation Inc.

Guardettes Dispatch Vehicles From LCC

Effective Monday guardettes are dispatching vehicles on a daily basis from the lobby desk in the Launch Control Center.

The sub-motor pool is located directly in front of the Launch Control Center. Proper authorization is necessary prior to issuing these vehicles.

Passenger vehicles will be issued only for those locations not served by a shuttle bus.

Also, shuttle bus route number five, which served the E and O Building, Launch Complexes 11, 12, 13, 14 and 36, has been discontinued due to lack of sufficient use.

Personnel going to these areas can use GSA sub-motor pool vehicles or taxi service.

Gemini 5 Test Conductor Predicts Several "Firsts"

Preparing Gemini 5 for flight ended many weeks of intensive spacecraft planning and testing for Charles (Chuck) Gay, the Kennedy Space Center's Gemini 5 test conductor.

Gay and a team of spacecraft specialists conducted nine weeks of spacecraft factory tests and inspections at McDonnell Aircraft Corp., St. Louis, and another eight weeks of prelaunch testing at the Kennedy Space Center.

As Gemini 5 Test Conductor, Gay's responsibilities include conducting spacecraft prelaunch acceptance tests as well as coordinating launch activities with those of the Gemini launch vehicle, Mission Control Center and the worldwide tracking range.

In St. Louis, the test team followed a comprehensive test schedule in preparing the Gemini 5 spacecraft for flight readiness and shipment to the Kennedy Space Center. Factory testing included spacecraft systems verification, simulated flight and altitude chamber tests.

At the Kennedy Space Center, Gay and his group monitored installation of pyrotechnic devices throughout the spacecraft and installation and alignment of retrorockets in the spacecraft adapter section. Pre-mate systems tests, joint combined systems tests, wet mock tests, flight configuration mode tests and final spacecraft systems tests were performed at Complex 19.

These tests were followed by a simulated flight test, pyrotechnic resistance checks and cryogenic servicing. During the wet mock test, a simultaneous launch demonstration was performed with an Atlas-Agena target vehicle on Complex 14, a rehearsal for the Gemini 6 rendezvous mission.

"A great deal of knowledge was gained during the four previous Gemini missions, particularly the two manned missions," Gay said. "Extremely rigid specifications were tightened even further for Gemini 5, and inspection procedures were more stringent than those previously used."



Chuck Gay

Gay was born in Oneida, N. Y., and received a degree in industrial engineering from the University of Florida in 1957. He served in the Navy during the Korean War.

Before joining KSC in 1964, he participated in a Goodyear Tire and Rubber Company management training program for one year. Prior to that, he worked for six years with General Dynamics/Astronautics as a flight test engineer. He lives in Satellite Beach with his wife and three sons.

Gay is convinced that the significance of Gemini 5 will be evident with the accomplishment of several "firsts."

"Gemini 5 will demonstrate an eight-day, long duration capability for both the spacecraft and the crew," he said. "In addition, this will be the first use of fuel cells for supplying spacecraft power during a manned flight."

"Another first for Gemini 5 will be a functional check of the rendezvous radar with the rendezvous evaluation pod while in orbit."

Gay believes the accomplishment of these "firsts" will have a direct influence on future Gemini missions.

POWERFUL BOOSTER

A Saturn V rocket using a nuclear-powered third stage would enable NASA to land 45,000 pounds directly on the moon.

Altitude Chamber Readied For Apollo Spacecraft

Even though the schedule does not call for a lunar landing until near the end of the decade, U.S. astronauts will experience many of the challenges of a moon flight in a 54-foot cylinder of simulated space at the nation's spaceport.

The mock missions will be "test flown" in two huge altitude chambers, each large enough to place an Apollo spacecraft inside and able to simulate altitudes of 250,000 feet. Construction of the chambers was completed at the Kennedy Space Center last week.

The stainless steel chambers, 54 feet high and over 33 feet in diameter, are located inside the 100-foot-tall high bay area of the Manned Spacecraft Operations Building in the KSC Industrial Area.

Since there are no "corner garages" for repairs in space, KSC takes all possible steps before a flight to ensure that every part of a spacecraft will do its job throughout a mission. To exercise critical spacecraft systems and to provide experience for the astronauts, these altitude chambers were built to create conditions similar to those met in near-Earth orbit.

Two test stands also were constructed beside the altitude chambers. Before being placed inside the chambers, the spacecraft are assembled on the test stands where a series of tests are made on the combined systems.

Once placed inside the alti-

tude chamber, test team members enter to ensure proper mating of spacecraft modules and to connect cabling for flight simulation and test equipment to the spacecraft. Adjustable work platforms, which completely surround the spacecraft, are built inside the chambers to ensure access at any point for test preparations.

Each chamber has its own air conditioning, ventilating and air cleaning systems. These systems provide a working environment for members of the test team inside the closed chambers while preventing the entry of contaminants into the chambers and their systems.

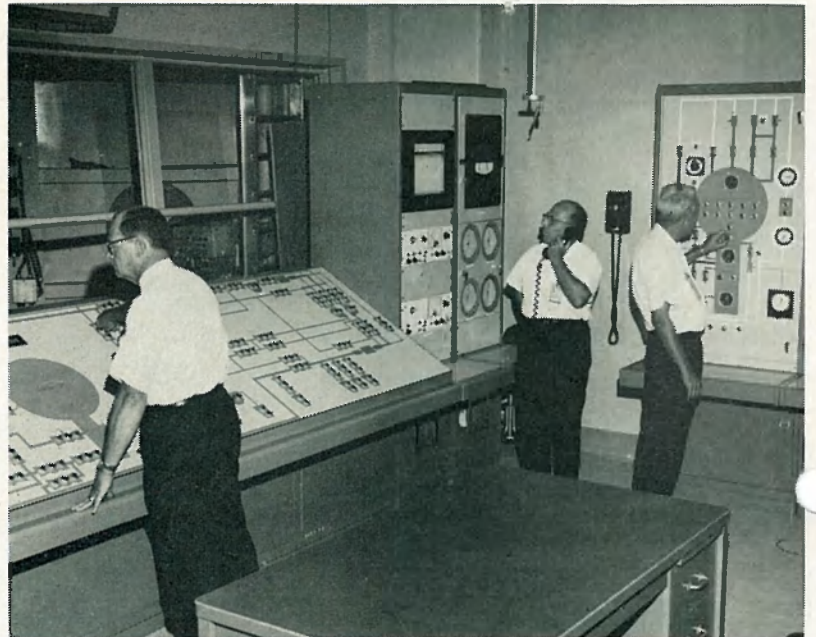
Sensitive equipment on the spacecraft and in the chamber itself makes it necessary to maintain near hospital-operating-room cleanliness. Workmen entering the chambers wear special clean garments. All entry ports for equipment, connecting lines and personnel are sealed. The domed chamber lid is removed only long enough for spacecraft insertion or removal. With the spacecraft installed and ready for tests, the chamber lid is sealed and the chamber's vacuum pump system is activated.

The first Apollo spacecraft to be tested in the chambers will be the unmanned Apollo airframe 009, made up of the Command and Service Modules only. Later tests will include the entire spacecraft with the three-man astronaut crew participating.

The altitude chambers join a growing list of highly specialized test and checkout facilities at the Kennedy Space Center which will ensure the nation's moon-bound astronauts that all is "go" at lunar liftoff time.

SPACE DOLLARS

According to a recent news release from the office of U.S. Congressman Ed Gurney of the 11th Florida District, (which includes Brevard County), \$24 of every \$500 spent for income taxes goes into the space program.



PAUL WHITAKER, NASA, and James Palm and William Thomas of Dow Chemical Company, man control consoles in the altitude chamber control room during chamber acceptance testing.

Fare Well

(Continued from Page 1)
space environment of the two-man crew.

Seventeen experiments are scheduled to be conducted during the flight. Five are medical, six scientific and six technological. Six of the experiments are sponsored by the Department of Defense.

The eight-day mission is about the time required for an Apollo crew to fly to the Moon, explore its surface and return to Earth.

Gemini is expected to demonstrate that the prolonged weightlessness of a manned Moon landing mission is not a threat to the health of the crew and that well-conditioned, well-trained astronauts can perform effectively over the duration of such a flight.

New equipment on Gemini 5 includes the rendezvous radar and guidance system, developed for rendezvous and docking with an orbiting Agena rocket.

A radar evaluation pod will be carried in the adapter section of the spacecraft and ejected in space to simulate the Agena.

Purpose of the radar pod in Gemini 5 is to test equipment and provide practice in rendezvous techniques. Once the pod has been ejected the astronauts will pull away. Later they will seek it out as a test of the equipment. There will be no docking.



Dear Sir:

I am a boy 14 years old, and I have a high eye cue. Could I train for interplanetary space travel?

Malcolm K.
Chester, Pa.

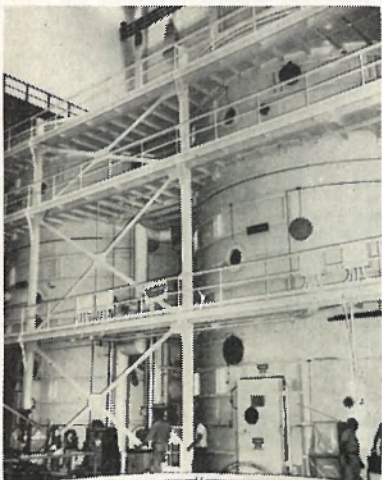
Use of a fuel cell as the electrical power also is new in Gemini 5. It is a device which converts electrical energy from the reaction of hydrogen and oxygen.

The fuel cell replaces the storage batteries previously used and will supply all in-flight electrical power for the spacecraft.

The Gemini program is the second phase of the nation's manned space flight program. It is designed to provide experience in orbiting maneuvers, rendezvous and docking, space flights lasting up to 14 days and for manned scientific investigations in space.

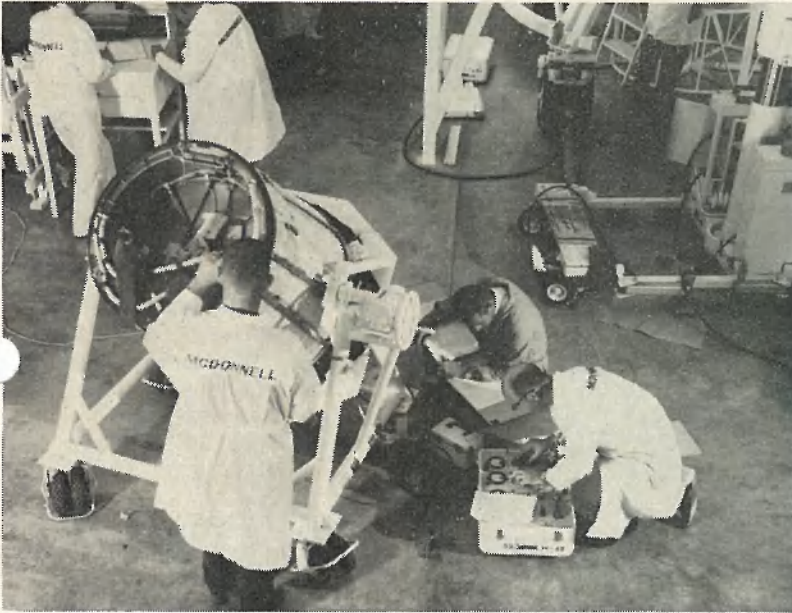
This is the third manned Gemini flight. The first two of the previous four Gemini flights were unmanned.

Astronauts Cooper and Conrad have been in training for their mission at the Kennedy Space Center for the past several weeks.



ALTITUDE chambers can simulate altitudes up to 250,000 feet.

Gemini 5 - Behind The Scenes Preparations



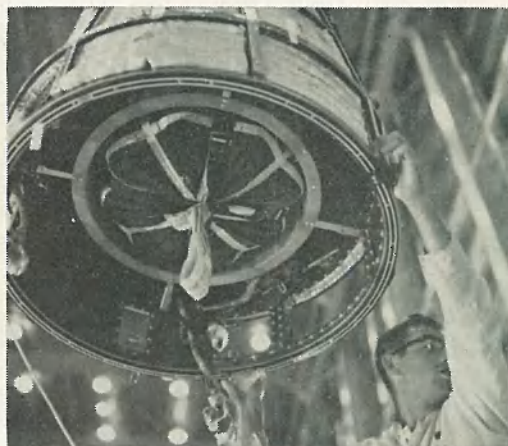
McDONNELL personnel inspect and install retro rockets in adapter section of spacecraft at the Kennedy Space Center.



TECHNICIANS install radar into spacecraft at Launch Complex 19.



WALT Kapryan, Head, Gemini Resident Program Office, and John Williams, Assistant KSC Director for Spacecraft Operations, huddle during countdown test.



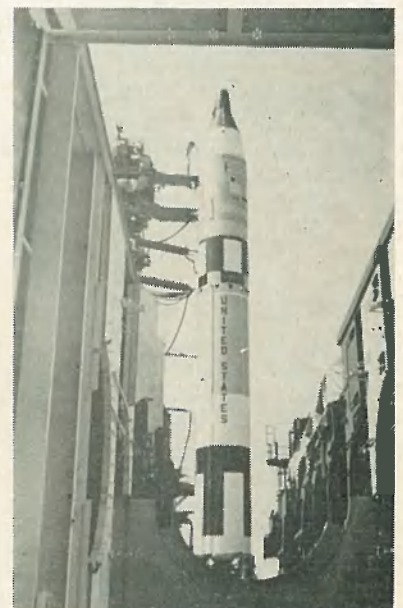
MAIN parachute installation was made in KSC's Pyrotechnic Building.



KSC technicians unpack and inspect spacecraft rendezvous evaluation pod.



IN COMPLEX 19 blockhouse NASA, Air Force and industrial representatives run through count.



Gemini 5 Launch Vehicle



Two representatives of the Home Life Insurance Company, underwriters of the NASA Group Life Insurance Plan, will visit the Kennedy Space Center next Thursday through Saturday (August 26-28).

Any employees having questions regarding the group plan are urged to attend the meetings which will be held in the Manned Spacecraft Operations Building cafeteria at 9:30 a.m. and at the KSC Headquarters Building cafeteria at 10 a.m. next Thursday.

These representatives may be also contacted on an individual basis in room 2209-D, KSC Headquarters Building, between 1 and 9 p.m. next Thursday.

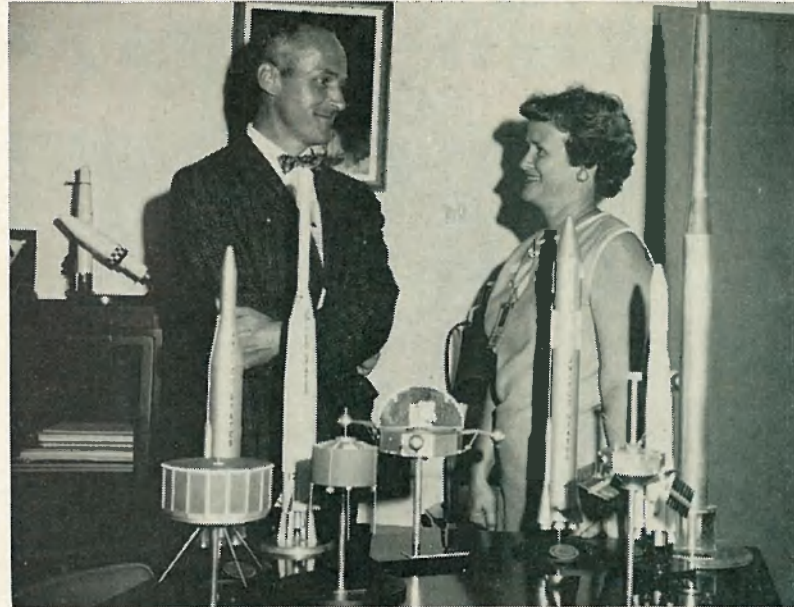
In addition to the Group Life Insurance Plan, the NASA Employees' Benefit Association is currently considering the adoption of a new Travel Accident Plan whereby all employees will be eligible to participate for a nominal fee.

This plan, if adopted, will cover all local travel to and from work in addition to business travel. The details of this plan will be explained by the Insurance Company's representatives during their visit to KSC.

* * *

NASA has announced that Dr. Raymond L. Bisplinghoff will not terminate his services on Sept. 1, 1965 as previously announced, but will continue as Associate Administrator for Advanced Research and Technology until a successor is selected.

Dr. Bisplinghoff will then transfer to the Office of the Administrator, James E. Webb, as Special Assistant to work on a number of high-level NASA problems in the area of advanced research and technology and those areas of research in electronics needs and opportunities which should guide the work of NASA's new Electronics Research Laboratory.



MRS. REGINA D. Vietor, secretary for the past eight years to Robert H. Gray, left, Manager, Goddard Launch Operations, is retiring tomorrow after 20 years of Civil Service to devote more time to her home and family. She began work at the Cape during the early days of the Vanguard program.

Flu Shots

(Continued from Page 1)

portant."

The flu shots will be made available at no charge to all KSC employees, civil service and contractor.

V. E. Christensen, KSC medical administrative officer in the occupational health program, said a new vaccine would be used this year. It is believed to be the most effective ever developed.

Christensen added that it is near the time of year when the highest number of flu incidents are reported. Exact times and location of shots will be announced in the near future. The shots will be administered by a "jet gun" inoculator instead of by needle.

"The fight against influenza is a continuous one," Christensen said, "and by instituting this program we hope to cut down absenteeism as much as possible."

Flu symptoms are similar to those of an ordinary cold plus severe chills, severe aches of the bones and joints, and extreme weakness.

"I sincerely hope that every employee at the Center will take advantage of this opportunity to help himself, and in so doing help all of us get on with the important job of this Center," Dr. Debus said,



THIS SPECIAL cachet commemorating the Gemini 5 flight was prepared by the KSC Post Office. It appears on the lower left corner of all envelopes processed by the Post Office during the day of the launch. The cachet was designed by Bob Karr of KSC's Graphics Section.

U.S. - German Launch

NASA and the Federal German Ministry for Scientific Research (BMWF) have announced the signing of a Memorandum of Understanding for cooperation in a program of space research on the Earth's radiation belts.

The program contemplates the placing of a German scientific satellite in a polar orbit in 1968.

OSO-C Set For Launch

A third Orbiting Solar Observatory (OSO) will be launched from Cape Kennedy by a three-stage Delta vehicle no earlier than Tuesday.

The 620-pound OSO will carry nine separate scientific experiments to study the sun and its influence on the Earth's atmosphere.

The OSO program is one of NASA's major efforts in solar physics, and OSO's launch will maintain the continuity of observations during the 11-year solar activity cycle. Solar activity currently is in a minimum phase.

A better understanding of the sun's mechanics and behavior is expected to enhance mankind's knowledge of the solar influence on Earth and to help in predicting solar flares whose swiftly generated X-rays could menace manned space flights.

OSO I, which carried 13 experiments, provided more than 2,000 hours of scientific information during its lifetime. OSO H, with eight experiments, is still operating.

Like the earlier OSOs, the new solar observatory will be launched by a three-stage Delta vehicle into a planned circular orbit about 350 miles above the Earth. Its useful scientific lifetime is expected to be about six months.

The OSO spacecraft are designed and built under contract by Ball Brothers Research Corp. The Delta vehicle is produced by Douglas Aircraft Co. The launch will be directed by the Goddard Space Flight Center's Launch Operations Division at Cape Kennedy.

FLORIDA GETS GRANT

NASA has awarded a \$1,190,000 facilities grant to the University of Florida, Gainesville, for the construction of a Space Science Building on the campus.

The proposed four-story building will contain about 53,000 square feet for laboratories and offices and is designed to bring graduate students and scientific investigators into working relationships in space-related sciences, social sciences and engineering.