



ASO-3 File

Centaur Flight Meets Goals

NASA's sixth Atlas-Centaur space vehicle, AC-6, was successfully launched Wednesday and hurled a 2,100-pound dynamic model of the Surveyor spacecraft into a highly elliptical Earth orbit with an apogee of about 515,000 miles and a perigee of 100 miles.

The AC-6 flight was a full-scale simulated mission to determine the vehicle's capability to inject a Surveyor spacecraft on a lunar-transfer trajectory.

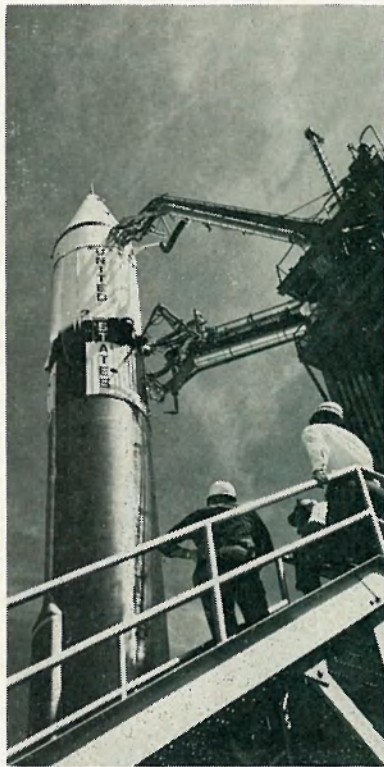
Surveyor is being developed by NASA to soft-land on the moon and conduct lunar surface studies in support of future manned Apollo missions. Actual Surveyor spacecraft will weigh approximately 2,250 pounds.

The AC-6 mission, sixth in a series of eight scheduled Centaur development flights, was a further step in qualifying the Centaur vehicle for operational lunar and planetary space missions. The flight was designed to obtain data on several new Atlas-Centaur features and to continue evaluation of other components and systems tested during previous missions.

The 113-foot, 303,000-pound space vehicle produced 389,000 pounds thrust at liftoff. The Centaur second stage is powered by two RL-10 liquid hydrogen-liquid oxygen engines with a thrust of 15,000 pounds each.

Centaur is to play a key role in launching U. S. scientific payloads of medium weight. In addition to its mission of launching Surveyor spacecraft to the moon, the Centaur upper stage will be combined with a Saturn IB vehicle for other planetary space missions.

The Centaur Project is being developed by General Dynamics/Astronautics under the direction of NASA's Lewis Research Center. Centaur launches are conducted for



ATLAS-CENTAUR

Lewis by NASA's Goddard Space Flight Center's Launch Operations Division at Cape Kennedy. Bob Gray is Goddard's Centaur Operations Manager.

NASA'S Jet Propulsion Laboratory has management responsibility for the Surveyor Program. The spacecraft is supplied by Hughes Aircraft Co.

Saturn IB Booster To Arrive Saturday

The booster for the first Saturn IB launch vehicle, scheduled to be flight tested early next year, departed its New Orleans manufacturing plant today enroute to the Kennedy Space Center.

The arrival of the stage will mark the first time the new lock at Port Canaveral will be used to transfer cargo from the ocean to the Banana River.

Scheduled to arrive late August 13, the stage will pass through the harbor and then north on the Banana River the following day to its launch complex at NASA's Pad 34, Cape Kennedy.

The 80-foot long stage, which will generate 1.6 million pounds of thrust, is being transported from the Marshall Space Flight Center's Michoud plant, New Orleans, to the Kennedy Space Center aboard the barge Promise. It was assembled at Michoud by the prime contractor, Chrysler Corporation.

Other components of both the launch vehicle and Apollo spacecraft for the first IB flight are scheduled to arrive in the KSC area within the

next few weeks.

The adapter for the spacecraft Lunar Excursion Module (LEM) is due at the Cape Kennedy skid strip August 10. It will be flown here by helicopter from the North American Aviation plant at Tulsa, Okla.

The Apollo Service Module is scheduled to leave California by air August 16. The remaining spacecraft component, the Command Module, will be sent August 20.

The S-IVB second stage of the Saturn IB will travel to KSC via a Military Sea Transport Service ship, the Point Barrow. The 200,000 pound thrust S-IVB will depart the Douglas Aircraft Company's Sacramento test facility August 28 and arrive here Sept. 14.

The Saturn IB, which introduces a more powerful liquid hydrogen fueled second stage, is NASA's follow-on program to the Saturn I series which logged 10 straight successful

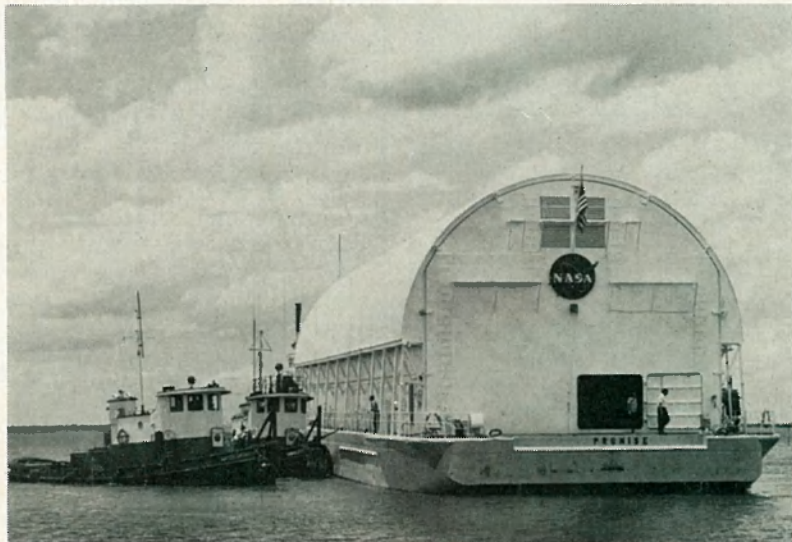
(See SATURN IB, Page 2)

New Officials Named

James Elms and Lt. Gen. Frank A. Bogart have been named Deputy Associate Administrators for Manned Space Flight effective September 1. Elms will act as general deputy giving special attention to three Centers in the manned space flight program and total resources. Gen. Bogart will be primarily concerned with management problems.

Paul E. Cotton who was Assistant to Dr. Mueller has been named Director of Manned Space Flight Management Operations, and succeeds Gen. Bogart.

Brigadier General Julian Bowman, Ret., USAF, succeeds Cotton as special assistant to Dr. Mueller.



THE PROMISE

Saturn V First Stage Tested Successfully

A full duration ground test of a Saturn V Booster (S-IC) stage was conducted last Thursday at the Marshall Space Flight Center at Huntsville, Ala.

The 2½-minute firing followed a series of shorter duration tests of the huge booster during the past three months.

The S-IC stage, 33 feet in

diameter and 138 feet long, is the world's largest rocket. In last Thursday's test it developed 7.5 million pounds thrust and consumed more than 4 million pounds of propellant at a rate of 15 tons-per-second.

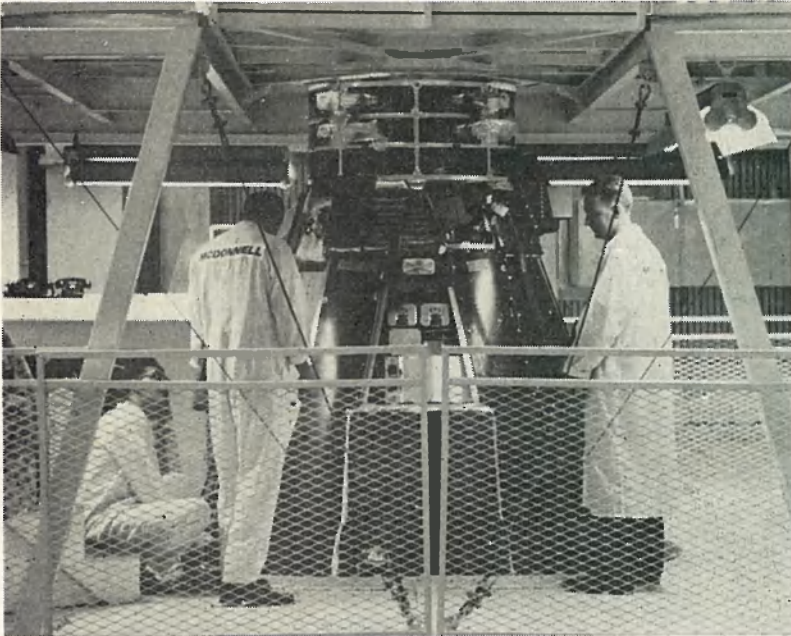
The ground test stage is identical in most respects to a flight unit.

The test booster plus the first two flight boosters are being assembled by the Marshall Space Flight Center using components supplied primarily by the Boeing Co. Boeing, as prime S-IC contractor, is building two ground test stages and eight flight units at NASA's Michoud Assembly Facility in New Orleans.

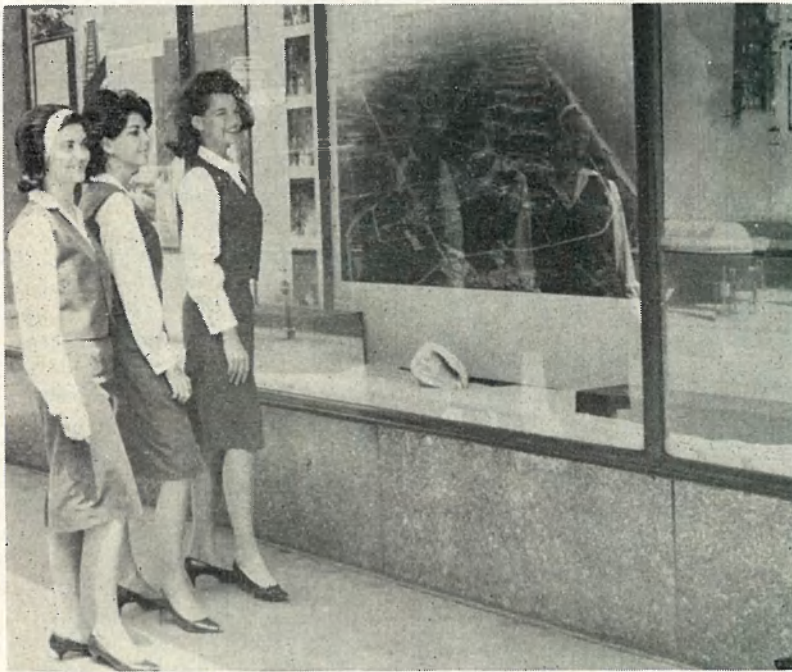
The first flight of the Saturn V vehicle is scheduled in 1967 from the Kennedy Space Center.

SATURN IB

(Continued from Page 1) flights. In later flights the IB will place astronauts into earth orbit aboard the Apollo spacecraft. The earth orbital tests will be rehearsals for the Manned Lunar Landing Program in which three astronauts will be launched to the moon by a more powerful Saturn V rocket before the end of the decade.



ENGINEERS and technicians install pyrotechnic devices in Gemini 6 spacecraft during prelaunch preparations in KSC's Pyrotechnic Installation Building. The Gemini 5 spacecraft, which underwent similar preparations, is now mated to its launch vehicle at Complex 19. It is scheduled to be launched Aug. 19, and will be piloted by Astronauts L. Gordon Cooper, Jr., and Charles Conrad, Jr.



ON WEST 40th street in downtown Manhattan Florida Showcase girls admire the Kennedy Space Center exhibit now on display in the Showcase. Thousands of New Yorkers are viewing photos of KSC facilities during the exhibit.

Save Your Sick Leave

Most of us are interested in making sure we have some kind of insurance against loss of income. Those of us who work for a living know what it means to get our pay checks regularly. Take it away for several weeks and it would mean economic disaster. But there is a way to guarantee that you can be assured of an income in time of prolonged illness—and it won't cost you one cent!

Save your sick leave.

If you couple this with participation in one of the low cost surgical benefits programs offered under the Federal Employees Health Benefits Act, you will have provided yourself with one of the most generous insurance protections possible against accident and illness.

Saving your sick leave is like carrying insurance on your car. You may carry it for years and never need it. But you wouldn't think of cancelling it because you know one bad accident could mean financial ruin. For example, four weeks of sickness with no sick leave to cover time off may result in serious financial problems for most employees. Viewed this way, it is obvious that there is everything to gain—and nothing to lose—by saving sick leave.

Thirteen days of sick leave a year are credited to your account. It is a privilege which results from your employment, and there is no limit to the amount you can save. It costs you nothing and brings the welcome assurance that the cost of extended illness will be reduced significantly if you have "banked" sick leave against emergencies.

A substantial balance will be one of your best protections against the financial drain of prolonged illness because it guarantees full pay checks for as long as you have leave to your credit.

Make sure your sick leave is used to your best advantage. If sickness does strike, a substantial balance may well provide you with just the measure of security necessary to protect you and yours from financial disaster.

SPACEPORT



NEWS

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Profile: Wright Kerns

He Keeps Finger On The Public Pulse

Every day surprises aren't surprises at all to U. Wright Kerns of KSC's Office of Education and Community Services.

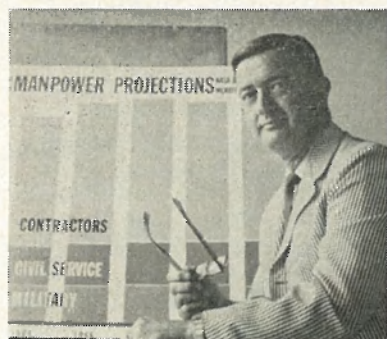
On any given day, he may be asked to explain the effect of a Saturn launch on migratory waterfowl, how soon State Road 50 will be four laned or to provide a 1980 population projection for Merritt Island south of the 520 Causeway for school planning purposes.

"It's pretty much a name-it-and-you-can-have-it, situation," says Kerns. "The job is a two-way communication pipeline between NASA and the local communities, county, state and other federal agencies. We try to keep up-to-date on NASA's plans and programs as they affect land areas, population, work force, capital outlay and matters relating to the general public.

"In turn, we feed back to our management people the plans and programs of the communities and county as it affects our employees and their welfare, and as it touches the mission of NASA."

A typical example is the comprehensive personnel survey presently being conducted by Kern's office. A systematic random sample of the 30-odd thousand persons engaged in NASA and Department of Defense activities in the area has been selected. From this survey will come important information leading to population trends, housing information, road and traffic data, mobility of the work force and citizen concern for community services and facilities.

Kerns gets requests for in-



Wright Kerns

formation about Brevard County and its people from every corner of the nation.

"The public officials of the State of Florida, Brevard and the other counties surrounding the Kennedy Space Center, as well as their community officers, are keenly aware of the importance of the space program," Kerns said. "And they see the need to create an environment to not only attract but retain the skilled personnel needed to fulfill the NASA mission."

Kerns, a native of Pennsylvania, has a degree in economics from Temple University. After four years as a naval officer during World War II, he went into business for himself.

Following a tenure with the Florida Development Commission in Tallahassee, he joined NASA in 1962.

Keeping track of the varied problems and needs of the surrounding communities is a big job that is not without its share of headaches. But Kerns would have it no other way.

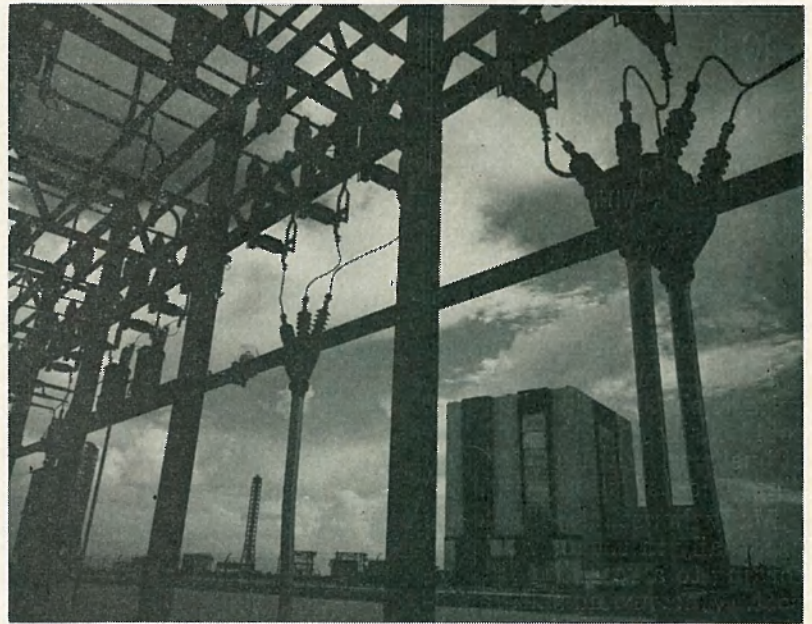
25-Year Pin Established

Approval has been received to establish a 25-year length of service pin and to eliminate the 1-year pin effective October 1.

The bronze pin, currently issued for 1-year's service will be issued for 5-years' service beginning October 1.

The 25-year pin is a new addition to the family of service pins. It will be similar to the present 20, 30, and 40-year pins in that the surface will be enamel. The stone will be sapphire blue and the number "25" will appear in the cirlet on the lower left-hand corner.

This means that KSC employees who attain eligibility for 1-year service awards after September 30, will not receive them. Employees who become eligible for the new 25 year service pin on or after October 1, will receive these emblems on a quarterly basis, that is, at the end of December, March, June and September of each year.



POWER FOR APOLLO, Complex 39's VAB and Mobile Launchers are shown in a high voltage framework.

Electric Power System Vital To KSC Operations

One of the most vital but unheralded operations at the Kennedy Space Center is the distribution of electrical power. Without electricity, the Center's widespread activities—including the launching of space vehicles—would grind to a halt.

With all its facilities now activated, KSC will consume approximately 150,000,000 kilowatt hours electricity during the present fiscal year at a cost of about \$1.5 million. These figures are expected to double within the next two years.

There are two primary electrical substations at KSC—the south substation located in the Industrial Area, and the north substation situated across from Launch Complex 39. Both substations receive power from a single high voltage feeder line of the Florida Power & Light Co.'s system.

Although KSC's power system is operating now at only half capacity, peak loading is expected in a few years as the Apollo program swings into high gear.

According to Herman Brunke, Chief of KSC's Utilities Maintenance and Operation Section, Base Operations Division, construction is now underway to tie-in with the Cape Kennedy Air Force system in the vicinity of the Ti-



Herman Brunke

tan III Complex. A future tie-in with Florida Power & Light Co.'s Titusville feeder line is now in the planning stages.

NASA facilities at Cape Kennedy are supplied power by the Air Force system.

Brunke's group is responsible primarily for the operation of the south substation which feeds 55 facilities in the Industrial Area as well as providing power for construction contractors in the area. Assisting Brunke in this monumental task are 28 KSC and contractor employees.

They also furnish support when requested for the north substation and distribution system which is the responsi-

(See POWER, Page 4)



Housewives of Kennedy Space Center employees, despite their shopping budgets, could easily get into the rocket business — at least from an “ingredients” standpoint.

Many household items are used daily in rocket work, according to a recent NASA report. Vinegar and salt, for instance, are used in certain processes of making rocket fuels, as is bicarbonate of soda.

A cleaning compound for opening clogged drains — lye — is commonly used to purify rocket fuels, except it is known as sodium hydroxide by space scientists.

The bleach used to make clothes sunshine bright is actually sodium hypochlorite, an ingredient of a rocket propellant. Kerosene, too, is a missile fuel, but is also used in lanterns or for cleaning around the house.

Epoxy resin, a household repair cement, also helps hold rockets together.

Activated charcoal, used to purify gases in rockets, keeps potato chips fresh in the house.

Potassium permanganate, a catalyst for hydrogen peroxide, is a disinfectant used in removing rot from bulbs in gardening.

Sodium lauryl sulfate, which detects leaks in rockets is used in soap.

Ammonia, a rocketry laboratory reagent, is a household cleanser.

Gold worn on the hands, fingers, and maybe the teeth, is a heat reflector in rockets.

Teflon, a nonreactive chemical used for rocket gaskets, is used in greaseless frying pans.

Nylon, attractive when used in ladies hose, is also used in recovery parachutes, shroud lines and as a reinforcement for plastics in high temperature applications.

Safety is always in SEASON.

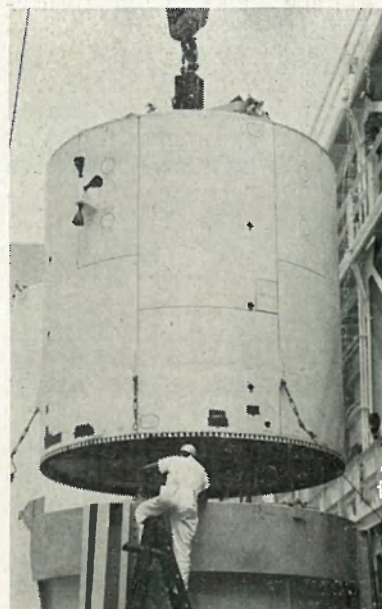


KEN PRATER of Hayes International is in a seemingly precarious position on the launch pedestal of the mobile launcher. Actually it's only a model of the launcher — now on display in the lobby of the KSC Headquarters Building.

Apollo Configuration Verifies Test Facilities



Command Module



Service Module

A complete Apollo spacecraft mechanical configuration is being utilized by personnel at KSC to check out all Apollo testing facilities including those in the Manned Spacecraft Operations building.

The Apollo configuration—known as a facility verification vehicle — simulates the command and service modules, the lunar excursion module adapter and the launch escape system, and is used to check interface and compatibility between the spacecraft and ground support equipment. Individual components as well as the integrated configuration are used during the tests.

The Apollo configuration provides the capability to check out all spacecraft handling procedures, to establish a fit-check of all ground support equipment, to verify documentation for individual or stacked components and to serve as an aid in training personnel.

Any discrepancies noted in the testing facilities or ground support equipment during the tests will be corrected in time to handle flight-ready Apollo spacecraft as they are received at the spaceport.

POWER SYSTEM

(Continued from Page 3)

bility of the Launch Support Operation's Division.

Providing an uninterrupted flow of electrical power to the Industrial Area is no easy job judging from the statistics. There are approximately 32 miles of lead underground cable and 24 miles of aluminum aerial cable to service. The numerous substations in the manned Spacecraft Operations Building alone are fed by nearly a mile of high voltage cable.

KSC's power distribution system has the same requirements as any heavy industrial complex with the exception of being a much more critical system, Brunke explained.

“Emergency power generators are installed at critical locations should a sustained power failure occur. Portable generators also are available to provide power for such facilities as medical, fire, water, communications, etc.

“Should a power failure occur during a launch, or immediately after, we would have a complete loss of critical information. In case of a manned launch, a power failure might be disastrous. Thus we are instituting a program for permanent stand-by power at critical facilities.

“The present distribution system provides at least two loops from which we can feed the other utility systems and the fire, communications and medical facilities. All of the launch-critical facilities have provisions for connecting emergency generators should we lose permanent power.

“Additional loop feeders are in the planning stage so that greater capacity will exist for providing uninterrupted power.”

The Utilities Maintenance and Operations Section may not have one of the more glamorous functions at KSC, but without them the rest of us might as well stay home.

Suggestion Percentage

About 401,000 ideas for improving Government operations were submitted last year, of which more than 105,000 were adopted, upping the adopted suggestion rate to 27 percent from 25 percent