



# ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS

VOL. 16 NO. 19

Friday, September 16, 1977

## First stage Saturn V arrives soon at JSC

The first stage of the Saturn V, the S-IC, will arrive by barge at JSC Sept. 19.

The arrival of the S-IC will mark the first in a series of authentic hard-

ware to be brought to the Center for display at the back of the Building 14 parking lot and later transferred to an adjacent display area.

Eventually, an entire park (Rocket Park) and exhibits area are planned for that location. Picnic facilities and Little Joe and Redstone displays will be included.

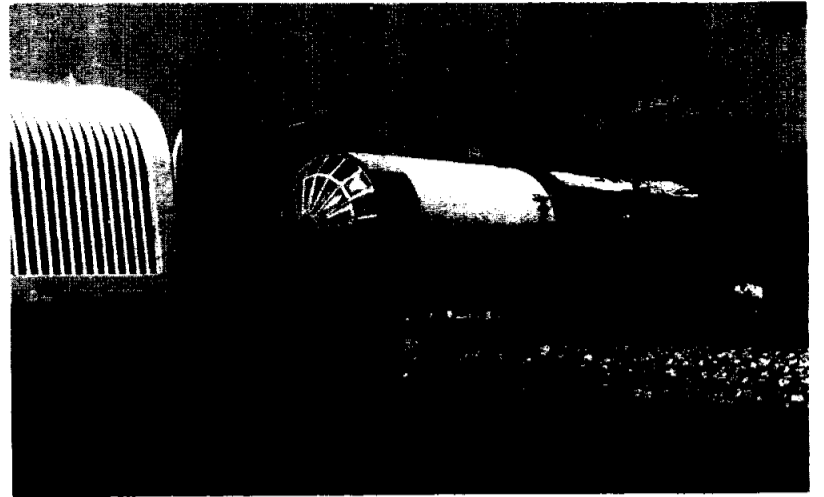
The first exhibit, which will arrive only in stages due to its tremendous size, will be the entire Saturn V assembly that was actually used as the backup hardware for the Apollo missions.

The S-IC will leave the Michoud Assembly Facility outside of New Orleans Sept. 16. It will be placed on a barge and transported through what is known as the Intercoastal Waterways.

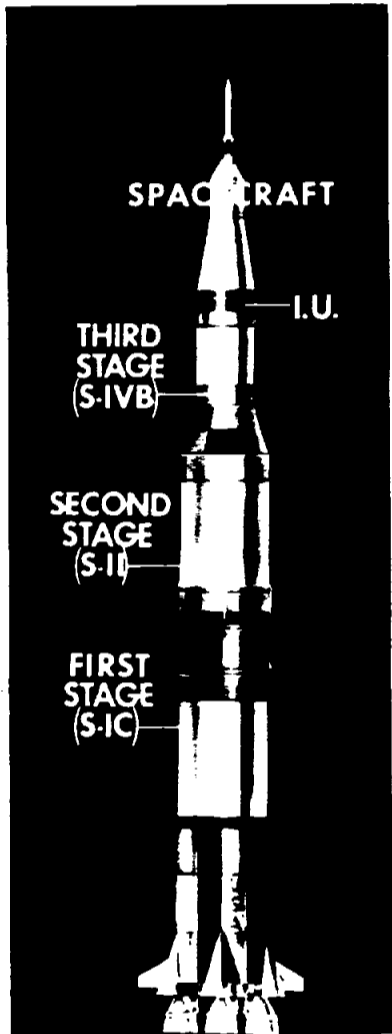
Intercoastal Waterways are a series of canals and deep water close inland, dredged parallel to the coast. Together they constitute a protected waterway; that is, protected as opposed to the Gulf or the ocean which would be considerably more hazardous for this type of operation. Depths and diameters within the Intercoastal Waterways are carefully controlled.

David B. Homer will be the Transportation Team Leader once the barge arrives at the JSC dock. He says the S-IC will come to the Center complete with nozzles and will have no shroud or covering to hamper photographers.

Most of the other stages will arrive much later from the Kennedy Space Center: the S-II, the S-IVB, the Spacecraft Lunar Adapter (better known as the SLA), and the Lunar Escape System (LES). The Instrument Unit will emanate from the Marshall Space Flight Center, and the Command Service Module (CSM) will originate at Downey, Calif. The Command Service Module (CSM) will originate at Downey, Calif.



The S-IC being loaded onto barge.



Saturn launch vehicle



S-IC, nozzles removed

## Both Voyagers are alive and well

How's the Voyager doing?

"Better than I am!" quipped the voice on the other end of the line.

It seems that officials at the Jet Propulsion Laboratory (JPL) have been swamped with the standard question about the Voyager spacecraft at such odd hours as 2:15 in the morning, and, fortunately, experts there have nothing but good news to report.

The launch of Voyager 1 Labor Day was "beautiful" according to a spokesman at JPL. The spacecraft is performing perfectly; all the booms are locked in place, and the craft is presently in a cruise mode.

The launch delay of Voyager 1 was said to be directly related to

problems that occurred with the launch of Voyager 2 last month. Extra springs were added to the booms, and potential computer problems in both vehicles were solved by some reprogramming, which consisted mainly of slight changes in the algorithms.

Right now, the Voyager 1 spacecraft is taking measurements of the solar wind and the interplanetary medium.

Continual computer printouts allow experts on the ground to know at any point in time how many miles from Earth or Jupiter Voyager is, how far it has traveled since launch, and its velocity relative to Earth, to Jupiter, and to the Sun.

## ALSEP control center to be dismantled

On Sept. 30, against a backdrop of a waning Moon, science instruments on the lunar surface will be turned off, and the Apollo Lunar Surface Experiments Package (ALSEP) control center at JSC will be dismantled.

The Apollo lunar science stations are being shut down because of dwindling power reserves at the stations and budgetary limitations here on Earth.

Since July 20, 1969, scientists on Earth have been receiving a steady stream of information about the Moon from the five ALSEP's left there by Apollo explorers.

The five operating stations, one each for Apollo missions 12, 14, 15, 16, and 17, have been nothing short of tenacious. Specifications called only for a one-year operating lifetime for the first four ALSEP's and a two-year lifetime for the Apollo 17 station.

The Apollo 12 ALSEP is now well into its eighth year and the Apollo 17 ALSEP is still operating in its fifth year. Over 153,000 commands have been transmitted from Earth for execution by the Moon

stations, and more than one trillion pieces of lunar science and engineering data have been received from them on Earth. The total accumulated operating time for all ALSEP stations exceeds 29 years.

The stations were built to provide long-term lunar surface geophysical and electrical data. Surface experiments included measuring heat produced by the interior of the Moon, measuring the types and quantities of charged particles in the Moon's ion atmosphere, measuring the magnetic environment, and measuring and providing seismic data on moonquakes and meteoroid impacts.

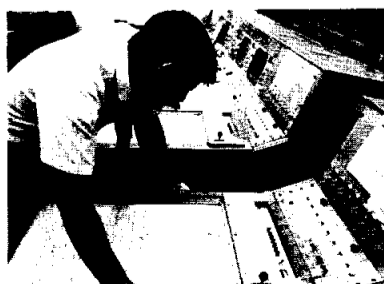
Considerable knowledge about the Moon has been gleaned in the past eight years. It is now believed that the Moon crust is multilayered and from 60 to 100 kilometers (3.6 to 6 miles) thick with a second boundary at an approximate 20-kilometer (1.2-mile) depth.

The upper mantle has been determined to be fairly homogeneous and to extend to approximately 500 kilometers (30 miles). It is thought to be composed of olivine

or olivine-pyroxene matter, although other compositions have been proposed. Seismic data indicate the Moon may be iron-enriched.

Even though experiments will be terminated, the transmitters left on the Moon will continue to serve as a reference point in astronomy.

The Jet Propulsion Laboratory will continue to use the signals from the transmitters to assist them in deep space work, including geodetic and astrometric studies and spacecraft navigation. Also, the motion of the lunar orbit will be accurately monitored against a background of extragalactic stars to test gravitational theories.



STRIP CHART RECORDER - Roy Keeley (Bendix) reviews engineering data from one of the ALSEP's.

## Second free flight tests aerodynamic capabilities

The second free flight of the Orbiter *Enterprise* Sept. 13 was very similar to the initial Aug. 12 flight - and every bit as smooth!

Tuesday's flight was intended to show how sensitive the Orbiter would be during specific maneuvers. To accomplish this task, astronauts Joe Engle and Richard Truly, who spent about equal time at the *Enterprise* controls, initiated program test inputs on the computer keyboard and made aerodynamic stick inputs to test flight control and handling characteristics.

During the press conference at the Dryden Flight Research Center, which was attended by more than a

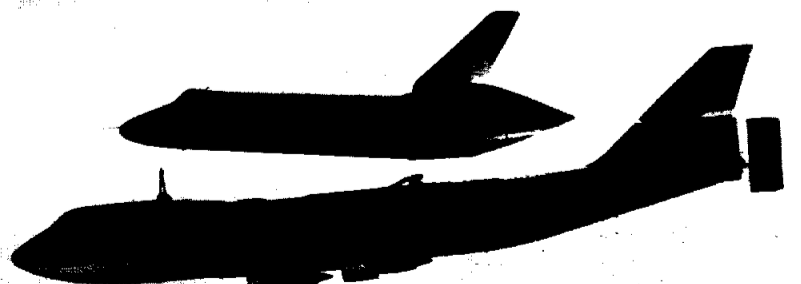
hundred newsmen, Engle was asked to compare the handling of the Orbiter and the X-15.

Engle said the Shuttle was more massive and, therefore, not as quick as a smaller aircraft, but very solid.

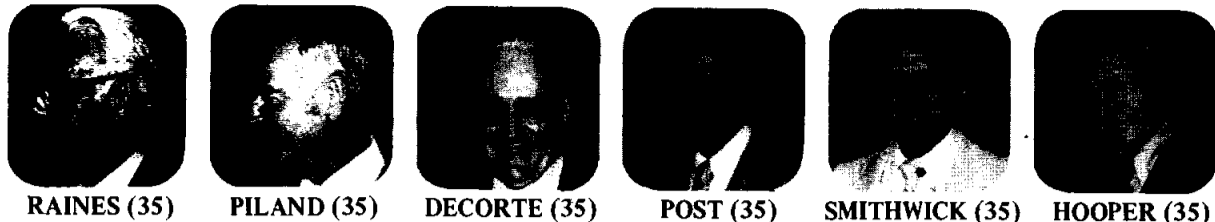
Lakebed runway 15 was used for this flight instead of the preferred runway 17 because of previous rains at Edwards, which had caused the flight date to be postponed.

Astronauts Fred Haise and C. Gordon Fullerton are scheduled to pilot the *Enterprise* during the third free flight in about two or three weeks.

(Continued on page 4)



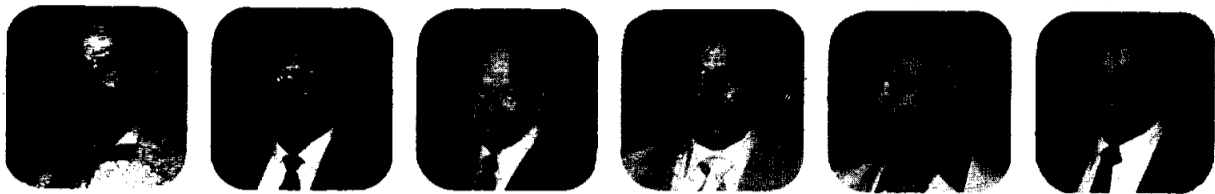
SEPARATION - Orbiter shown moments after separating from the 747.



RAINES (35) PILAND (35) DECORTE (35) POST (35) SMITHWICK (35) HOOPER (35)



BUINSKI (35) WILKINS (30) STOKES (30) SHROPSHIRE (30) ROMERO (30)



LEE (30) FIELD (30) CRAVEN, JR. (30) BOOTH, JR. (30) ANDREWS (30) ALLEN (30)

**LONG-TIME EMPLOYEES HONORED** — Ceremonies were held Aug. 16 for 39 JSC employees with 25 years or more of government service. Shown above are those employees who received awards for 30 or 35 years of service. Thirty-five year award winners were: Martin L. Raines, Joseph V. Piland, Joseph P. DeCorte, George A. Post, Oral R. Smithwick,

Martin L. Hooper, and Stanley J. Buinski. Thirty-year award winners were: Sammie Wilkins, Katherine Stokes, Edwin Shropshire, Carl Romero, Lewis Lee, Roy Field, Jackson Craven Jr., Arthur Booth Jr., Richard Andrews, and Preston Allen. Not pictured are John W. Eggleston and William W. Petynia.

## The shoe is on the other foot

"I was standing there making coffee for the reporters — you know, like a good wife," laughed Dr. William Fisher. "It felt kind of odd," he joked, "everyone was huddled around my wife and no one seemed to know what I was doing there ..."

Fisher and his wife, astronaut applicant Anna Sims, are newlyweds who spent what was supposed to be their honeymoon at JSC the week of Aug. 29.

They had applied separately the last week astronaut applications were being accepted. Anna Sims received a call to be interviewed. So far, Fisher hasn't.

Fisher says he always wanted to be involved in the space program but figured that there wouldn't be anything "really going" in his lifetime that would allow him to contribute to it.

Then along came recruitment for mission specialists aboard the Space Shuttle. "If we were ever to have the chance, I suddenly realized this was the time," he said.

"My wife and I both work in emergency medical facilities. We deal with trauma and shock constantly. You can't afford to be hasty, to get tired, or to bypass that one extra test that might save a person's life. I figured there would be a

need for people who had that kind of experience in the Shuttle Program — especially on long-duration missions."

Fisher's professional interest outside of his immediate job is population biology, and they are both excited about the potential of medical experimentation in space. However, the Fishers are equally interested in being a husband-wife emergency medical team on Shuttle missions.

Asked whether it bothered him that Anna might be selected instead of him, he replied, "It doesn't really matter which of us gets the chance or if neither of us do. The important thing is that we are among the generation that had the first crack at it. Even to be interviewed would be an honor.

"For myself, I'm very satisfied with the job I have. It's very rewarding work. To go on the Space Shuttle — well, that would be one extra bonus in my life. I really hope Anna makes it."

Richard Wiley is a policeman in Tiberon, California — a small town outside of Sausalito, near San Francisco.

When he found out that his wife, Millie, had been asked to interview at JSC in response to her applica-

tion, he decided to come along "to give her moral support" and to combine the trip with sightseeing.

When asked how he would feel about his wife being up in space, he answered, "Thrilled; just thrilled."

"We've always liked active sports," he said. "Hang gliding, things like that. I wish I could go up there, but I really don't have the right qualifications."

And Wiley thinks his wife will make it to space, too. He confided that he has great confidence in Millie's abilities. "She has never failed at anything she really set her mind to do, and she's always willing to give a hundred and one percent!"

Wiley admitted he won't be overly excited about leaving the clear skies and invigorating atmosphere of northern California, even if the drought there has brought about enforced severe cutbacks in allowable water consumption.

"But if Millie got the chance to be an astronaut, I'd pack in a minute." He is already investigating opportunities with the Houston police department.

"After all," says Wiley, "one thing you don't have to worry about in Houston is a shortage of water."

# Ann Sullivan chosen Secretary of Month

Ann Sullivan "richly deserves the recognition that comes with being selected as a JSC outstanding secretary," according to Richard S. Johnston, Director of Space and Life Sciences.

Mrs. Sullivan serves as private secretary to Johnston and is described as "an inspiration to others" because of her congenial attitude, her knowledge of new and innovative procedures, and her participation in numerous programs for self-improvement.

During the past year, Mrs. Sullivan applied outstanding skills during several organizational changes which ultimately lead to the formation of a new directorate. Early in this period, she simultaneously served the secretarial needs of three acting directors with diplomacy, poise, and tact, never failing to satisfy everyone's requirements.

Mrs. Sullivan implemented new systems for filing, correspondence

control, office procedures, and assisting other secretaries. She is highly respected by her associates and all levels of management. In Johnston's words, she has "the mark of a professional" in her field.



Ann Sullivan



**ALFORD RECEIVES 40-YEAR EMBLEM** — Roy A. Alford received a certificate and a 40-year service emblem from Dr. Christopher Kraft in a ceremony Aug. 26. Alford began his Federal service in 1930 in the U.S. Army and was working in the Public Affairs Office at the time of his retirement. Robert A. Frosch, NASA Administrator, congratulated Alford in a letter.

## Torres is selected top September co-op

It would normally take a senior engineer who was familiar with two noncompatible computer systems three or four months to do the job that Peter Torres, top Co-op for this month, has accomplished in only one term.

Torres has been assigned to the EG4/Data Systems Branch under Robert D. Vaughan and was charged with the task of converting a wire wrapping program from an IBM 360/45 computer to an SEL

3200 minicomputer in the EG4 electronics laboratory.

The task was broken down into four phases, and it was anticipated that Torres would complete one phase of the task each co-op period. Torres, however, is on the third phase in his first co-op period.

Torres' work has been marked by a quick grasp of techniques and operations, a minimum of direction and supervision, enthusiasm for the job, and the ability to work well with others.

## Margaret Thatcher visits JSC

Margaret Thatcher, leader of the Opposition (Conservative) Party in Great Britain, visited JSC Saturday, Sept. 10.

Mrs. Thatcher was accompanied by her husband, Denis Thatcher, and Adam Butler, M.P., Parliamentary Private Secretary to Mrs. Thatcher.

The Thatcher party arrived at JSC at 9:30 and toured the Space Shuttle simulators and mockup, the Mission Control Center, and viewed exhibits and artifacts.

The event was attended by several representatives from the press and by Mr. and Mrs. Roy Fox, Consul General, Houston.



**OUTSTANDING SUMMER AID AWARDS** — Left to right, the young people selected to receive this award are: (first row) Dianne Mitchell, Sheryl Kossa, Cynthia Armstead, Patricia Quinney, Patricia Cardenas, Phyllis Samuels, Stella

Gutierrez, Carolyn Davis, Beatriz Ulloa; (second row) Theresa Turner, Stafford Jones, Ana Almaguer, Little Baines, Tina Chaney, David McMillion, Willie Richardson, Carla Ellison, and Renee Lewis.



# Combined Federal campaign drive set

The Gulf Coast Combined Federal Campaign for 1978 will be from Sept. 12-Oct. 14, 1977, at JSC.

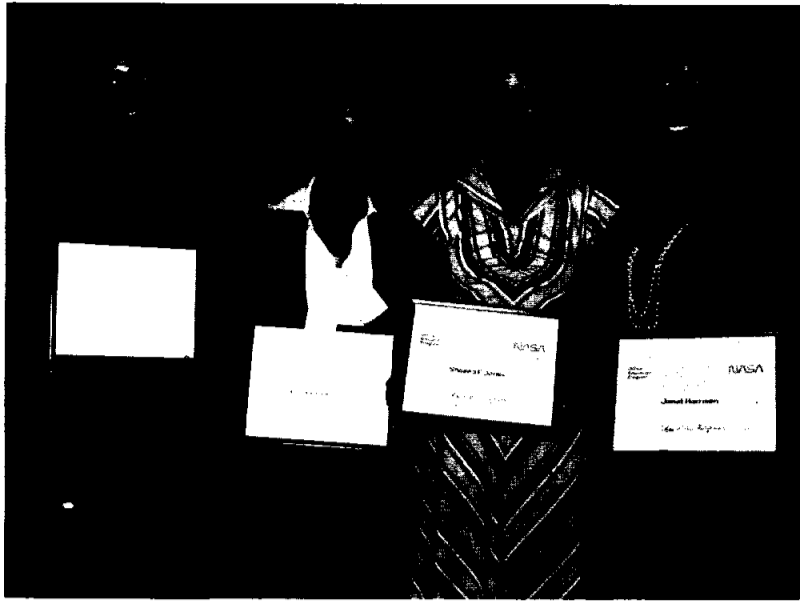
For the seventh time, all the Federal agencies in the six-county Gulf Coast area have joined together in a once-a-year drive for United Fund — the National Health agencies and the International Services agencies — thus eliminating the old system of having several drives each year. This method also gives the

contributor a wider selection of agencies if he prefers to make his entire gift to one or two causes.

The JSC goal for the 1977-78 campaign is \$204,154. Unfortunately, JSC can no longer claim to be leading among the Federal agencies in this effort, having been outdone by the Federal Aviation Administration (FAA) in employee per capita gifts, which amounted to \$54.21 last year. The JSC per

capita gift was just \$3.45 short of that figure — \$50.76.

Bill Kelly, the JSC representative on the Federal Executive Board (which is the body that establishes the goals) says he is confident that employees here will come through with the donations necessary to reach this year's goal, but he hopes that JSC will once again stand out as the leader in generous contributions for the benefit of those less fortunate.



OFFICE EDUCATION STUDENT AWARDS — The outstanding Office Education students (left to right) are: Jonetha Davidson, Genice Evans, Shena F. Jones, and Janet Harrison. Not pictured are Eula Jones and Anna Ortiz.

## Tennis Club wins 31-5

The JSC Tennis Club emerged victorious in matches played with the American National Insurance (ANI) Tennis Club Aug. 20.

Twenty-four single and 12 double matches were included in this Annual Traveling Trophy Tournament with the Galveston branch of the ANI. JSC won the singles matches 20-4 and the doubles 11-1 for an overall victory of 31-5.

At last count, the JSC Tennis Club had 254 members, which is very large for a club of this kind. For that reason, only 24 members got to participate in the tourna-

ment, and Tournament Director Frank Newman apologizes for that.

Nevertheless, the Tennis Club offers a tremendous opportunity to make new friends and to play one's favorite sport. Many tournaments are scheduled, such as the indoor tournament at the Friendswood Racket Club Oct. 14-16.

Carolyn Thompson is the person to call if you want to play and are not a member of the Club. She may be reached at X-5987. Or for further information about fees and such, call Frank Newman at X-7204.

## New regulation instigated to ease JSC traffic woes

The intersection of Avenue E and Second Street has been the source of traffic accidents, near accidents, and heavy congestion, especially during rush hours but extending to all parts of the workday.

A study of this problem has shown that the flow of traffic at this intersection affects the sequence of the traffic lights on NASA Road 1.

As a result, effective September 19, 1977, there will be no left turns from Second Street to Avenue E nor right turns from Avenue E to Second Street permitted at any time. It is expected that these measures will reduce congestion at Avenue E and Second Street, improve the traffic flow on NASA Road 1 entering the Center and substantially reduce the risk of traffic accidents.

## Wheelchair ramps/signs appear throughout JSC

Visitors to JSC who are confined to wheelchairs are now able to find parking closer to the orientation building and are aided along the visitor trail by the recent addition of ramps at stairs and curbs.

Signs printed in international symbology direct the handicapped visitor to wheelchair parking at the south end of Building 2. Ramps

have been carefully designed at specific angles for ease in ascending or descending curbs and stairs in a wheelchair.

Employees have been familiar with various concrete ramps located throughout the Center for some time, but only recently has the same effort gone into the construction of such facilities for visitors.

## Theme set for Spacepex-77

"A salute to the Space Shuttle Approach and Landing Tests" is this year's theme of the Spacepex Exhibition and dealer bourse, which is sponsored by the JSC Stamp Club.

Spacepex-77 will be held Sept. 24 and 25 in the Arbor Building of the University of Houston at Clear Lake.

Judges will select award winners from over 1200 pages of exhibits in the open competition — the Grand, Reserve Grand, first, second, and

third place awards as well as the sterling silver JSC Stamp Club Space Philately Award and a number of specialty awards.

The JSC Stamp Club meets on the second and fourth Mondays of the month at 7:30 p.m. in the Gilruth Recreation Center. The first meeting is devoted to trading and talking; a program is presented at the second. Visitors are invited to attend, or contact assistant chairman Lee C. Scamp at X-2267 for further information.

## Cafeteria Menu

WEEK OF SEPT 19 - 23

**MONDAY:** Cream of Potato Soup; Weiners & Sauerkraut; Stuffed Pork Chops; Baked Chicken; Meat Sauce & Spaghetti (Special); French Beans, Squash, Buttered Beans. Selection of Salads, Sandwiches, & Pies Daily.

**TUESDAY:** Navy Bean Soup; Beef Stew; Liver w/onions; Shrimp Creole; Smothered Steak (Special); Cabbage, Corn, Peas.

**WEDNESDAY:** Seafood Gumbo; Roast Beef; Baked Perch; Chicken Pan Pie; Salmon Croquette (Special); Mustard Greens, Italian Beans, Sliced Beets.

**THURSDAY:** Beef & Barley Soup; Beef Tacos; Pork Steak; Diced Ham w/Lima Beans; Stuffed Cabbage (Special); Ranch Beans, Brussel Sprouts, Lima Beans.

**FRIDAY:** Seafood Gumbo; Fried Shrimp; Devilled Crabs; Ham Steak; Salisbury Steak (Special); Carrots, Green Beans, June Peas.

WEEK OF SEPT 26 - 30

**MONDAY:** Cream of Chicken; Beef Burgandy over Noodles; Fried Chicken; BBQ Sausage Link; Hamburger Steak (Special); Buttered Corn, Carrots, Green Beans. Selection of Salads, Sandwiches, & Pies Daily.

**TUESDAY:** Beef Noodle Soup; Baked Meatloaf; Liver w/onions; BBQ Spare Ribs; Turkey & Dressing (Special); Spanish Rice, Broccoli, Buttered Squash.

**WEDNESDAY:** Seafood Gumbo; Red Fish; Tamales w/chili; 8-oz. T-Bone Steak; Spanish Macaroni (Special); Ranch Beans, Spinach, Beets.

**THURSDAY:** Navy Bean Soup; Beef Pot Roast; Shrimp Chop Suey; Pork Chops; Chicken Fried Steak (Special); Carrots, Cabbage, Green Beans.

**FRIDAY:** Seafood Gumbo; Broiled Flounder; Fried Shrimp; Baked Ham; Tuna & Noodles (Special); Macaroni & Cheese, Turnip Greens, Stewed Tomatoes.

## Free flight...

(Continued from page 1)

"Does a successful flight mean a subsequent flight can be dropped?" asked one reporter.

Donald K. Slayton, Manager of the Approach and Landing Test Program, pointed out that because every flight is planned with different objectives in mind, "a good flight does not allow us to drop a later-flight."



TENSION EASED — Astronauts Truly (left) and Engle enjoy a laugh before the flight.

## NASA Tech House is now almost a bargain



Tech House, with its solar panels, looks very conventional.

Would you consider \$45,000 or \$50,000 expensive for a house these days? Even excluding the building lot?

Well, maybe it's a little high.

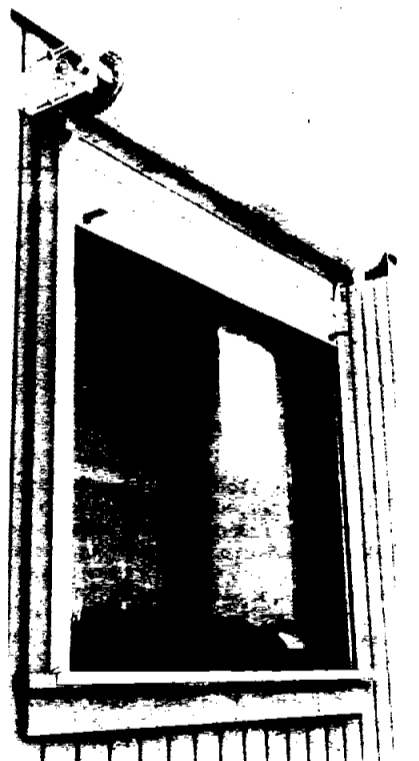
A recent magazine article on the subject indicated that such a cost might seem prohibitive to the prospective home buyer, but that much lower utility costs would make the initial investment pay off in the long run.

But \$50,000 for a 3-bedroom, 1500-square-foot home doesn't strike the average Houston homeowner as particularly unusual anymore, and much less unusual to homeowners in Los Angeles or the Washington, D.C. area.

And when the house is coupled with all the superefficient advantages of NASA's Tech House in Hampton, Va., it might even be considered a bargain!

Take, for example, the burglar alarm system, based on space research and technology. The major portion of the system is implanted beneath the lawn and uses a low-cost version of an electronics package like the one in the lunar seismometer left on the Moon.

be removed from the outside, and a pocket-size ultrasonic transmitter developed by NASA is used by a returning occupant to turn lights on before entering the house.



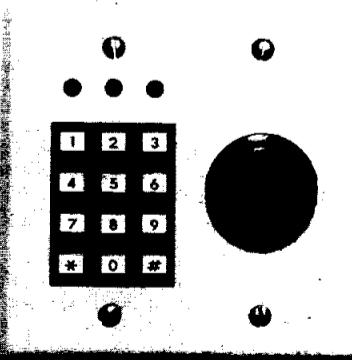
Shutters self-lock.

Then, there is the light-sensitive device that can detect tornadoes 18 miles away. It is a home version of a detector developed from space research.

Solar energy and other systems reduce fuel consumption by two thirds and cut water usage in half. Energy-saving features include a fireplace that draws its air from outside instead of using already warmed interior air. The fireplace also augments the hot-water supply by heating water that has been piped in through a tubular grate.

Water conservation is based on spacecraft recycling designs. A partial reclamation system filters wastewater from bathroom sinks, bathtubs, and laundry for reuse in toilet flushing.

The Charles William Swain family of four began their residency at Tech House Aug. 15. They will pay a prorated rent during their year-long "lease" and all their utility bills.



### Interior security system

Outside doors, once closed, cannot be removed from their frames. The hinges were developed at the Kennedy Space Center for security reasons.

Special wire sensors are woven into window screens and laid under carpets at strategic locations. Window shutters self-lock and cannot