ROUNDUP

Lyndon B. Johnson Space Center

NASA

October 5, 1979 Houston, Texas Vol. 18, No 20

MMU takes on new role

Astronauts to inspect and repair tiles in orbit

NASA is accelerating development of the Manned Maneuvering Unit (backpack) to allow an astronaut to inspect and repair the Shuttle's heat resistant tiles while in orbit.

Inspection and repair of tiles should not be required on the first orbital flight, designed to cause lower than normal stress, because the tiles will have been proof tested through the full range of stress expected.

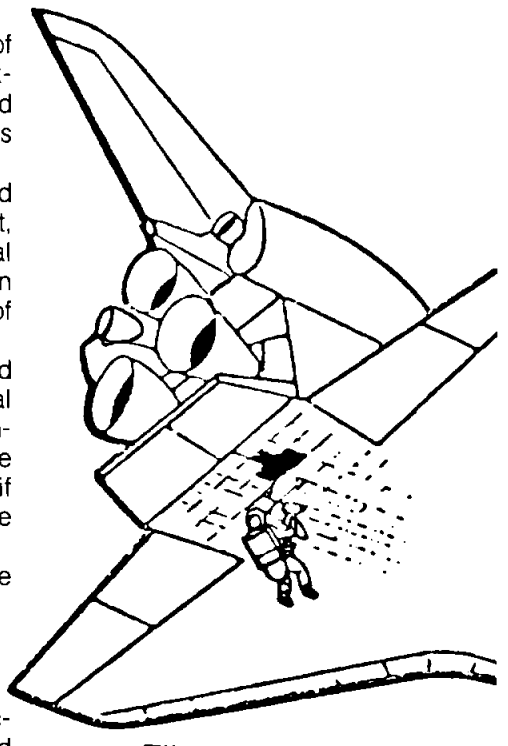
The EVA capability is being developed now so it will be available on later Orbital Flight Tests when the launch environment will be up to design level. Then, tile inspection and repair can be performed if the launch environment is more severe than now predicted.

The backpack unit should complete development by August.

Alternative methods

An alternative method of tile inspection, that of an extendable boom and television camera attached to the Shuttle's remote manipulator system, has been dropped from consideration.

In addition to the backpack, NASA will continue to examine, for at least another month, the feasibility of stabilized TV units being placed in orbit by the Shuttle. The Orbiter would fly by the cameras for a closed-circuit tile check by the crew.



Tile repair in orbit

Thousands of heat-resistant tiles cover the underside and sides of the Orbiter. If any tiles are damaged during launch, they may have to be repaired before the Orbiter reenters the Earth's atmosphere. An astronaut using a Maneuvering Unit would use one of the tile repair methods being developed to repair any damage to the heat shield.

Tile testing

NASA began tile pull tests this week to check the strength of several thousand tile bonds. The tests involve monitoring the sounds made as a tile is pulled outward under pressure. Engineers analyzing the sound will determine if each tile has adequate strength.

Tests of the tile will also begin soon using F-15 and F-104 aircraft at Dryden. The aircraft will perform maneuvers which demonstrate tile performance up to 140% of the dynamic pressure planned for Shuttle operations. These tests, however, will not check tile reaction to noise, vibrations, heating, and local shocks the tile may have to endure during actual launch. These environmental factors are being tested separately in various ground facilities.

In November, the Air Force's Arnold Engineering Development Center, in Tennessee, will begin wind tunnel testing of the tile. More extensive wind tunnel tests will follow in December.

Results of these planned tests should prove the strength of the heatshield tile system.

Hazardous Mission

Visibility is often low at this space outpost on the third planet from the sun. Astronauts here often choose indoor exercise—gym workouts, handball, and squash—to stay in shape, a requirement of the trade. Doctors advise against heavy exertion in the open air.

Even though the atmosphere is similar to that needed to support human life, it's been suggested that on certain days oxygen masks be worn outside the buildings. Acid rains fall daily, often continuing for weeks at a time.

This particular day the astronaut looks out from his office at a heavy sheet of rain. Blue-grey clouds have hung over the building for weeks. A determined look comes to his face as he confronts the challenge.

He pulls on his boots, adjusts the straps on his water repellant coat, and heads out the door. The chemical smell greets his nose, but he decides against a mask today. He's grown accustomed to the air here.

Bending forward against the south winds, he splashes across the parking lot from Building Four to the cafeteria.

Houston is an ideal climate for training astronauts. It prepares them for future space missions in other hostile environments.

Flu shots

It's that time of year again. Effective October 15, flu immunizations will be available at the JSC Clinic for badged NASA and on-site contractor personnel. Although an annual routine flu immunization is *not* recommended for healthy adults, it is recommended for persons who have chronic conditions, i.e., heart disease, respiratory ailments, diabetes mellitus or other chronic disorders. The following restrictions should be noted:

- Persons with hypersensitivity to eggs or chickens should not receive the vaccine.
- Pregnant women should receive the vaccine from their private physician.
- Persons with illnesses involving high fever should not be inoculated until they recover.

Inoculations will be available on a drop-in basis, beginning October 15, any Monday through Friday from 10-11:30 a.m. and 3-4 p.m. at the JSC Clinic.

099 passes rigorous testing

The NASA spacecraft Challenger (099) completed a 12-month series of rigorous ground tests September 30, certifying the structural design and integrity of the Shuttle spaceships. The craft now heads for the assembly line where it will be retro-fitted for Earth orbital flight missions.

Completion of the structural test program was a requirement prior to the first launch of the Shuttle Columbia next year.

Challenger will return to the Rockwell Palmdale final assembly site to be disassembled and reworked prior to undergoing systems installation and final assembly.

The Challenger's aft section and the forward fuselage go to Rockwell's Downey plant for modification, and the vertical tail will be shipped to Fairchild in New York, for renovation.

At Palmdale, Rockwell engineers and technicians will work with General Dynamics and Grumman personnel on the mid-body and wing sections.

Final assembly on Challenger is to begin next fall with delivery to KSC, following combined systems testing in March 1982.

The structural tests confirmed the stiffness of the spacecraft and were followed by limit load, pressure, and thermal tests. More than 4000 strain gauges were installed on the Challenger to measure load distribution, and over 350 deflectometers measured deflection responses.

The loads and pressures were applied by 365 hydraulic jacks which were controlled by a computerized system that simulated the loads expected at launch, boost, orbital flight, and return to landing of the spacecraft.

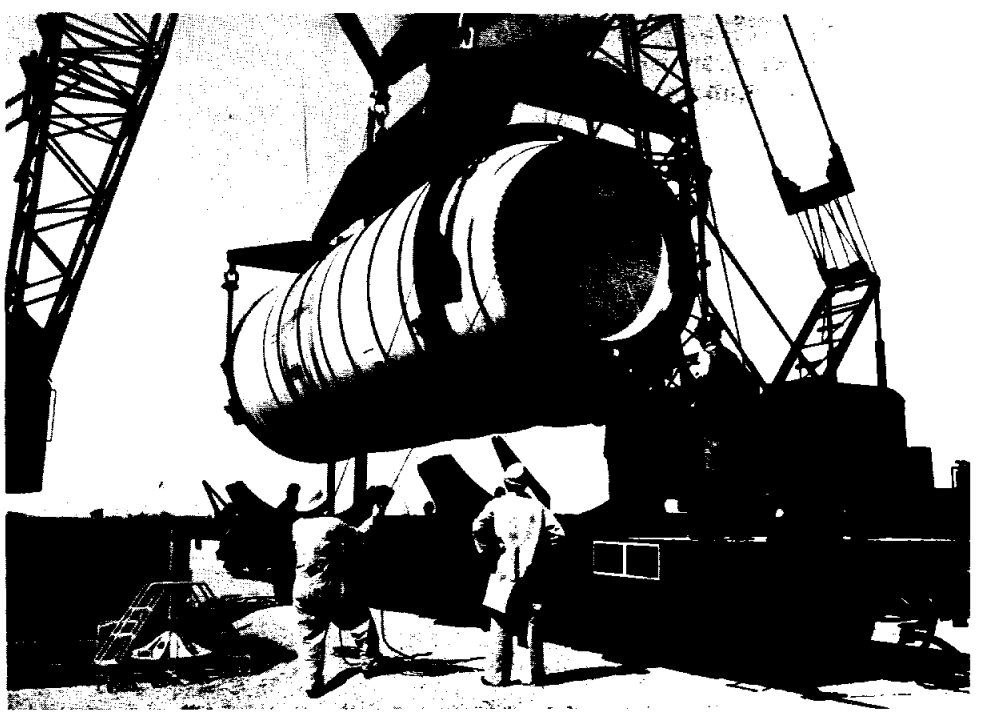
SRB: *Flight-type motor attains launch thrust*

The Shuttle's flight solid rocket motor passed the second in a series of three tests September 27, another milestone in its qualification for manned flight.

The two-minute firing, simulating firing time during a Shuttle launch, reached a maximum thrust of 3.1 million pounds and was the sixth successful static test of a Space Shuttle solid rocket motor. Four of the tests were conducted on development motors and the last two were on flight-type motors.

The third and final flight qualification static firing test will be conducted early next year.

The first Shuttle orbital flight is now anticipated between the end of March and July 1980. The second flight will occur four months later.



Segment of an SRB is hoisted for shipment to KSC *Marshall photo*

Bulletin Board

Please limit announcements to 10 lines, double-spaced copy

American Indian Program To be Held October 11

The Alabama-Coushatta Indian **tribe** will again tour the Space Center October 11, **performing twice**: at 11 a.m. in a program for local schools, and at 12:15 for JSC employees. Also included in the program will be **films**, such as "Arrows," and a display of American Indian Arts at the Bay Area YMCA. Programs will be in the Building 2 auditorium. Also, a **display of**

Indian artifacts will be in the Building 45 Library **throughout the month** of October.

On Sale at The JSC Exchange Store

(Store hours 10 am to 2 pm)

Dean Goss tickets - $10 single
$20 couple (Reg. $14.50 each)
ABC Theatre tickets - $2 each
General Cinema tickets - $2.40 each
Six Flags Over Texas tickets
$7.25 for one day (Reg. $9.25)
$9.25 for two days (Reg. $13.95)
Astroworld tickets - $7.25 (Reg. $9.25)
Magic Kingdom Cards - Free
Sea-Arama Marineworld Fun-time Card - Free

Astronomers' Program to Cover "New Planetary Laboratories"

The JSC Astronomy Society will hold its **monthly meeting** on **October 11**, at 7:30 p.m. in the Berkner Room at the Lunar and Planetary Institute on NASA Road One. Subject for this meeting is Voyager 2's flyby of Jupiter. Dr. Peter Schultz, a staff scientist at the **LPI**, will speak on "The Galilean Satellites, New Planetary Laborator es." **Anyone interested** in Astronomy is urged to attend. For more information call **Don Halter** at X-2213.

Get Some Grease on Your Hands And Save Yourself Some Money

The October **meeting** of the Space City **Automotive Associates** will be held at the Gilruth Recreation Facility (Room 215) at 5:15 p.m. on October 9. Business includes election of officers and a general outline of the year's activities. (This has been deferred from the September meeting.) This will be followed by **a presentation** and general discussion on **a selected area of automotive maintenance**. The club is open to all individuals interested in automotive repair, maintenance, and/or restoration. Further information can be obtained by calling FM17/Robert Stanley at **483-6181**.

Fire Fighters Needed Especially During the Day

Clear Lake City Fire Department volunteers serve not only as firefighters, but assist with vehicle and equipment maintenance, dispatching, and training. Participation is open to **any Clear Lake resident**, man or woman, who is 18 or older and in good physical condition. No experience is necessary. Interested individuals may obtain an application at Station Number One, 17306 El Camino Real. Fire fighting personnel are **always needed**, and if you can participate during the day, your assistance would be especially valuable. Call **488-0023** for further information.

Hiking on Tranquil Trails or Diving in Canyon Lake . . .

Are you the type of person who likes to: whitewater **canoe** and feel the clean spray of water in your face, **backpack** in the Piney Woods of North Texas, **camp out** under the stars next to an open fire, **bike** up and down Texas' rolling hills, sail quiet waters, scuba dive to the bottom of Canyon Lake, learn outdoor survival and the art of photography, and **share** your professional **skills with teenage men and women**? If you are, the Exploring Space Engineering and Youth Program needs you. Contact Jim Poindexter, X-4241, or Mike Oppitz at 659-8111 or 783-5867.

How to Defend Yourself On Nasa One from 4-6 p.m.

In conjunction with the Safety Council of Greater Houston, the EAA is sponsoring another **Defensive Driving Course** to be held on **October 16 and 18** from 6 - 10 p.m. at the JSC Rec Center. The cost for the course is $12 including materials. **Sign up before October 12** at the Building 11 Exchange Store from 9 - 2, or at the Rec Center. A 10% **insurance certificate** will be issued upon completion of the course. Any questions, call X-4921.

Denver on the loop

Performer John Denver sings 'Happy Birthday' over the loop to Bob Crippen who is training in the simulator. Denver, shown here with Joe Engle, was at the center September 11 filming an ABC special on manned flight that will air next year. *Photo by Charlie Turner*

JSC area tournaments smash hits

Mixed Doubles

The JSC Tennis Club and the Friendswood Racquet Club co-sponsored the Las Vegas Sahara Open Mixed Doubles Tennis Tournament August 10-12 at Friendswood Racquet Club. The tournament was a "smashing" success, with 85 mixed doubles teams entered in four classes.

Prizes for the winners of each class were weekends in Las Vegas (hotel, meals, show tickets, and gambling money). A "Las Vegas Night" party was also held on Saturday night with winners bidding for prizes from the FRC Pro Shop.

Winners were: Championship—Paul deMesquita and Tish Rowe; A—Les and Helen Talley; B—Bill Shoup and Kathy Manchaca; and C—Alan Hobbs and Mary Gisler.

Singles

The JSC Singles Tournament held on September 21 - 23, at Bay Area Racquet Club had over 140 entries for eight events, four men's and four women's.

The men's Championship Class was won by Brad Richison 6-3, 6-0 over Jack Williams. Brad is the pro at BARC. The Women's Championship event was won by E. Burris 6-2, 6-2, over S. Burris. In Men's "A", S. Spuler defeated F. Hermann 7-5, 0-6, 6-2. While in Women's "A", H. Weiler defeated L. Serr 6-4, 4-6, 6-4.

Men's "B" was won by Jim Porter, 6-4, 5-7, 6-2 over E. Murphy. Women's "B" was won by D. Manner, 6-2, 6-1, over R. Driver.

In the Men's "C" event, B. Moran defeated L. Csengeny 6-3, 4-6, 6-4, and in Women's "C", C. Gableman defeated M. Wylie 6-1, 6-1.

Photo by Jim Walker

Once again, we want to thank all who participated in the tournament and a special thanks to the tournament director, Ed Fendell, for a Job Well Done.

Marathon results

JSC's Radio Control Club, pictured on Page two of the last ***Roundup***, came in second place on their leg of the Jerry Lewis Marathon model airplane race. They flew 228 miles (Shreveport to Fort Worth), averaging 45 miles per hour.

NEBA FACT

In 1859 New York State established the first insurance department.

In 1861 the first war risk insurance was written by life companies in the Civil War.

Deluxe Fruitcakes Selling For Scholarship Money

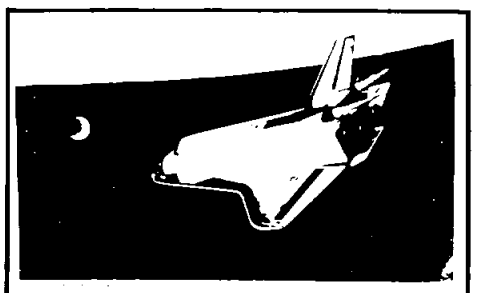
The American Business Women's Association is a national non-profit organization. Clear Lake Chapter's fund raising project is selling the famous Deluxe **Fruitcakes from Corsicana**. Monies are used to support scholarships **aiding area young women in furthering their education**. Cakes available: one lb. $4; two lbs $7.65; three lbs $10.90; five lbs $17.70. Mary Sprake X-1483 or Ann Maas 488-2965.

Courses offered in Applied ECM And Radar Signal Processing

The Continuing Engineering Education program at **George Washington University** in the Capital is offering two short courses in Radar Systems. For the first time it is possible to present an unclassified, current, comprehensive review of the electronic counter-measure (ECM) field as applied to microwave, radar-controlled systems. Emphasis will be on applications rather than mathematical analysis. Applied ECM will be held **December 10-14**.

As demands increase for more and better uses of radar, interest in enhanced use of signal processing has also increased. The Radar Signal Processing course, **January 14-18, 1980**, will cover theoretical concepts, current practice, and potential application based on results of recent research.

Both courses are designed for engineers and scientists working in related fields. For further information, call **(202) 676-6106, or (800) 424-9773.**



The *Roundup* is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all Space Center employees.

Writer/Editor: Kay Ebeling

Hard workers earn awards

Each year the Houston area Federal Business Association recognizes outstanding workers who are also active in the community. This year four JSC employees received honors:

For his outstanding performance at JSC since 1962, where today he serves as Technical Manager for contracts in Data Systems and Analysis, and for being active in the Imperial Estates Civic League and as President of the Clear Creek Drainage District, **Lee R. Nichols** was named Federal Employee of the Year in the Administrative category.

In the Craft category, **John W. Heckler** of Technical Services, received the Federal Employee of the Year award for his highly developed skills in modelbuilding, particularly reduced scale models that require attention to accuracy and detail. Heckler has been a member of the Knights of Columbus Council for 21 years, a group that sponsors charity projects in the Houston area. He has also taught sculpturing in adult education programs around Houston.

At the same luncheon, held September 13, the Federal Executive Board made special awards: The Chairman's Award went to **Bill Kelly** "for his many contributions," and **Virginia Hughes**

Nichols

Earls

was named the Federal Women's Program Manager of the Year.

Sustained Superior Performance awards go out regularly at the center, but this year **Victory D. Earls** is the first co-op student in the clerical/secretarial field to receive the award

Earls is working toward an associate degree at College of the Mainland. As a trainee in the Space Shuttle Program Office she has shown remarkable enthusiasm, dependability, and high intelligence. For a six-week period, she was acting secretary to the Assistant Manager, Space Shuttle Program, and workers throughout the program remarked on her versatility and adaptability.

The Virginia Aeronautical Historical Society has named Center Director **Christopher Kraft** to the Virginia Aviation Hall of Fame, for the part he has played in the history and progress of aviation. Presentation ceremonies will be held in connection with the Air Show at King's Dominion Park October 13 in Ashland, Virginia.

The American Institute of Aeronautics and Astronautics annually presents the Jeffries Medical Research Award, "for outstanding contributions to the advancement of aerospace medical research," and this year JSC's **Dr. Stephen L. Kimzey**, Head of the Clinical Lab at the Medical Sciences Division, will receive the award at a presentation in Pasadena, California, January 15, 1980. He was cited for "outstanding contributions toward identifying and unraveling the mechanisms of red cell loss in space flight and toward understanding the hematologic response to space flight."

What's cookin'

October 8 - 19

Monday: Holiday
Tuesday: Tomato Soup; Potato Baked Chicken; BBQ Spare Ribs; Mexican Dinner (Special); Squash; Ranch Beans; Spanish Rice; Broccoli.
Wednesday: Clam Chowder; Baked Turbot; Liver & Onions; BBQ Ham Steak; Baked Meatloaf w/creole sauce (Special); Beets; Brussel Sprouts; Green Beans; Whipped Potatoes.
Thursday: Beef & Barley Soup; Chicken & Dumplings; Corned Beef w/cabbage; Smothered Steak w/cornbread dressing (Special); Spinach; Cabbage; Cauliflower au gratin; Parsley Potato.
Friday: Seafood Gumbo; Pork Chop w/Yam Rosette; Creole Baked Cod; Tuna & Salmon Croquette (Special); Brussel Sprouts; Green Beans; Buttered Corn; Whipped Potatoes.

Monday: Cream of Celery Soup; Braised Beef Ribs; Chicken a la King; Enchiladas w/chili; Italian Cutlet (Special); Brussel Sprouts; Navy Beans. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selections of Salads, Sandwiches & Pies.
Tuesday: Beef & Barley Soup; Turkey & Dressing; Country Style Steak; Beef Ravioli; Stuffed Cabbage (Special); Corn Cobette; Okra & Tomatoes; French Beans.
Wednesday: Clam Chowder; Catfish w/hush puppies; Roast Pork w/dressing; 8 oz T-Bone Steak; Chinese Pepper Steak (Special); Broccoli; Macaroni w/cheese; Stewed Tomatoes.
Thursday: Cream of Tomato Soup; Beef Tacos; BBQ Ham Slice; Hungarian Goulash; Chicken Fried Steak (Special); Spinach; Pinto Beans; Beets.
Friday: Seafood Gumbo; Liver w/onions; Deviled Crabs; Roast Beef w/dressing; Seafood Platter; Tuna & Noodle Casserole (Special); Whipped Potatoes; Peas; Cauliflower.

Roundup Swap Shop

Ads should be under 20 words, double spaced, typed or printed, one ad per person. Deadline for submitting or cancelling ads is 5:00 p.m. the first Wednesday after publication. Send ads to AP3 *Roundup*, or deliver them to the Newsroom, Building 2 annex. No phone-ins, please. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads. Goods or services must be offered as advertised without regard to race, religion, sex, or national origin.

PROPERTY & RENTALS

Sale: By owner, Nassau Bay, 3-2-2, 60's, cul-de-sac, trees, fenced, large lot, high and dry. 333-2487 afternoons and evenings.

Sale: 67 Broadmore mobile home, 12' X 70', very good cond, 2-2, central a/h, dishwasher, washer and dryer, covered patio, storage room, 644-1355 after 4:30.

Lease: CLC, 3-2-2, new carpet, fresh paint, quiet cul-de-sac, $475/month plus deposit. Monica 332-1765.

Rent: New 4-bdrm waterfront house on Lake Livingston, Westwood shores, golf, pools, marina, daily or weekly rates. 534-3800.

Lease: CLC 3-2-2 covered patio, fireplace, formal D.R. available Nov. 1, $450/mo. 474-3507.

Beautiful country 4 bdrm, 3 bath contemporary ranch, 5 1/2 acres, trees, pool, barn, no flooding, see to appreciate. 585-4957

Galveston West End, 2-bdrm, By-th-Sea condo, furn. $210/week off, $280/week in season. Clements 474-2622.

Sale: Wooded waterview lot at Pt. Lookout on Lake Livingston, 75 X 137, utilities, restrictions, $3750. 946-7587.

Lease/Sale: 3-2-2 Wedgewood, fireplace, fenced yard, no flood, $425/mo + deposit. Jeff X7429 or 482-5393.

Rent: Lake Livingston, Cape Royale, compl furn home, 3-2-1. Fishing, hunting, tennis, golf, etc. Reserve early. Wk/mo/yr rates. 488-4487.

CARS & TRUCKS

77 Datsun Kingcab, A/C, camper top, new tires, CB, $4500. 944-3647.

74 Chevy Suburban, Cheyenne super C-10 series, 454 engine, PS, PB, dual A/C, cruise control, trailer towing package, $2700. 485-3039.

71 Dodge PU 1/2 ton 318 CID, auto trans, camper cover, good tires, $995. 946-4752.

77 Dodge van, auto, air, low mileage, exc cond. 482-3540 after 6.

70 Chev. PU, clean, make offer. 332-4732.

77 Corvette. silver-blue, tilt, cruise, AM/FM, 350 auto, 36,000 mi, exc, $8800. 488-5037.

Cab-over camper cover for PU truck, paneled, insulated, interior lights, curtains, built-in bunk, blue and white, exc cond, $425. 474-2200.

71 Toyota Mark II 4-door, A/T, new tires, very reliable, 30 actual hwy mpg, $1195/best offer. Jeff X7429 or 482-5393 after 5.

78 Trans AM, 7000 mi, like new, white, red interior, auto, stereo, speed control, $5895. Jim X3533.

79 Silverado PU. Take up payments, 538-1391.

78 Ford E-150 Leisure I all window van, fully equipped, reg gas, cruise control, AM/FM stereo, PS, PB, a/c, low mileage, $7795. 486-0677 after 4.

76 Honda Civic 1200 CC, 4-speed, standard, AM radio, new tires. Hudson 821-1373.

73 Chevy II Nova, 2 door, $400/best offer. Lenett X2128.

77 Z-28 Camaro, immaculate w/24,000 miles, air, auto, PS, PB, tilt and AM/FM/8-track. 471-3174.

73 Saab 99LE 4-dr, 4-speed, a/c, good cond, Jim X4571 or 488-8143.

CARPOOLS

Carpool riding from Pasadena area to NASA site, 8:30-5. Patti McGeorge X5384.

Need ride from Dobie High area (Kirkmont) to NASA Bldg. 419, I don't have a car. Henrietta X5486

PERSONALS

Handicapped man will share CLC condominium in exchange for some assistance. 474-2738.

I will address and stamp your Christmas card envelopes. $8.95 per 25 cards includes postage and pickup-delivery. Cindy 944-4896 after 5.

CYCLES

Motorcycle trailer, 3-bike capacity, good cond, $225. 482-5607 after 5.

10-speed bicycle, 20" bicycle, 13" bicycle, tricycle. Teasdale X6204 or 481-6074.

MUSICAL INSTRUMENTS

Bundy flute school band approved, 1 yr. old, cost $262, sell $175. Cates X3188 or 486-5070 after 6.

5-string banjo, good tone, good beginner's instrument, $100 or offer. Jamie X2896 or 644-3077.

Wurlitzer Organ, 3 keyboard (synthesizer) & rhythm, exc cond, $1400. Mark X2896 or 554-6745 after 5:30.

Conn 88H artist trombone $325. Ludwig pearl drum set, 6-pieces, $375, Ebersole built 1909 rosewood upright piano, $600. Sinderson X4507 or 946-0687.

MISC.

Set of golf clubs w/bag, MacGregor/Jack Nicklaus, 3 woods, 8 irons, 1 putter. Leather grips. Less than 2 years old, $125. Philippe X2303 or 482-1791.

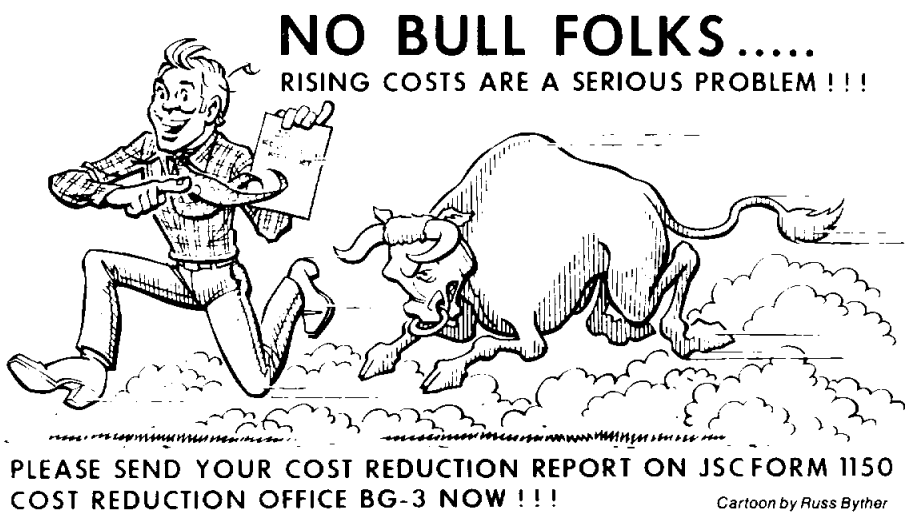
Cargo trailer, 6 X 12, 5 ft. high sides exc cond, heavy duty for loads, $500. Booth X2901 or 334-4734.

Goose gun, 12-gauge double barrel full choke 3 inch magnum, all features like new, $150. 488-1493.

Collectors! Back issues of classic magazines such as Helios, Jaybird, and Mossback. G. Zupp X4391.

D78-14 tire mounted on rim, like new, fits AMC Hornet or equivalent, $25. 485-6423.

Sears 36" 8HP riding mower, exc cond, $400 or best offer. Dick 486-9124 days or 538-1247 eves.



Old assorted mint U.S. commemorative stamps, 3¢ through 10¢ issues. $8 face value for $10. Jeff X7429 or 482-5393.

Bobby Mac deluxe car seat; carrier seat rocker; borg infant scale; swyngomatic converta-cradle; portable crib-play pen. 333-2487 after 1 p.m.

HOUSEHOLD ARTICLES

Simmons "Beauty Rest" mattress and box spring, queen size, $100 for both. 471-0778 after 5.

Red shag carpet, very thick, 6 ft. 3 in by 12 ft, $20. 488-5037.

Roll top student desk, walnut veneer, $40. Couch and love seat, Herculon, $275. E-Z chair and ottoman, $55. Corner table for twin beds, $60. Lynn 333-3237.

19.5 Coldspot frostfree upright freezer, Avocado, $275. 333-4994.

Coldspot refrig/freezer, $35; 36-inch Vent-a-hood, avocado, like new, $50. 331-0608 after 5.

PETS

Llahsa Apso, male, 1 1/2 yrs. old, very affectionate, with papers, needs family to love, $100. Becky X3491 or 1-925-3036 after 5.

WANTED

Luggage rack with back rest, safety bars and travel trunk for Honda GL-1000, 1976, Ken X3229.

BOATS & PLANES

Sailboat, 78 Cyclone 13 Capri and trailer, good cond, 627-1310 X177.

"LIDO-14" sailboats: new/used, family sailing/racing on C.L./L. Houston etc. Big fleet, exc inflation hedge. 334-2392 or 482-7305.

Vega 27. Cruising sailboat, diesel auxiliary, fully equipped, new cond, Seabrook shipyard, R Pier. 333-3601.

STEREOS & CAMERAS

Akai CR-83D 8-track stereo tape deck; Realistic SCT-11 Stereo cassette deck w/Dolby; Large chrome boom lamp w/metal base. X5592 or 486-5824.

Take a few minutes and prevent a fire

(Submitted by the Operations Safety Branch)

Most fires, whether at home or at work, can be prevented. By following the few simple, common sense precautions listed below, you can decrease the chance of a fire significantly.

Electrical

Inspect and replace all worn and broken wires and cables.

Do not drag, walk on, knot, nail, or otherwise abuse electric wires and cables.

Do not by-pass a fuse or substitute anything else for the proper fuse or circuit breaker.

Take faulty electric tools and machines out of service until repaired.

Keep electric motors clean, well-oiled, and well ventilated.

Do not use light weight extensions for heavy power loads.

Open Flames

Open flames should be avoided in all areas where possible.

Richard Holzapfel, Pete Clements, and Roxanne Rahn go over fire inspection reports and plans for week.

Control smoking and provide approved ash trays.

Necessary open flames such as welding, torch cutting, brazing, blow torching, and incinerating should be used only when shields are in place, flammable materials are removed, and an extinguisher is nearby.

Keep curtains, towels, and clothes away from gas stoves and ranges.

Flammable Liquids

Store flammable liquids such as gasoline in approved safety cans.

Use all flammable liquids outside or in a well ventilated area.

Store paints, oil, and cleaners in tightly capped metal cans, away from heat.

Keep only the flammable liquids that you actually need.

Never store gasoline in the trunk of an automobile.

Do not keep paint or oil rags after use—they can ignite spontaneously.

Housekeeping

Do not allow large amounts of combustibles such as paper to accumulate.

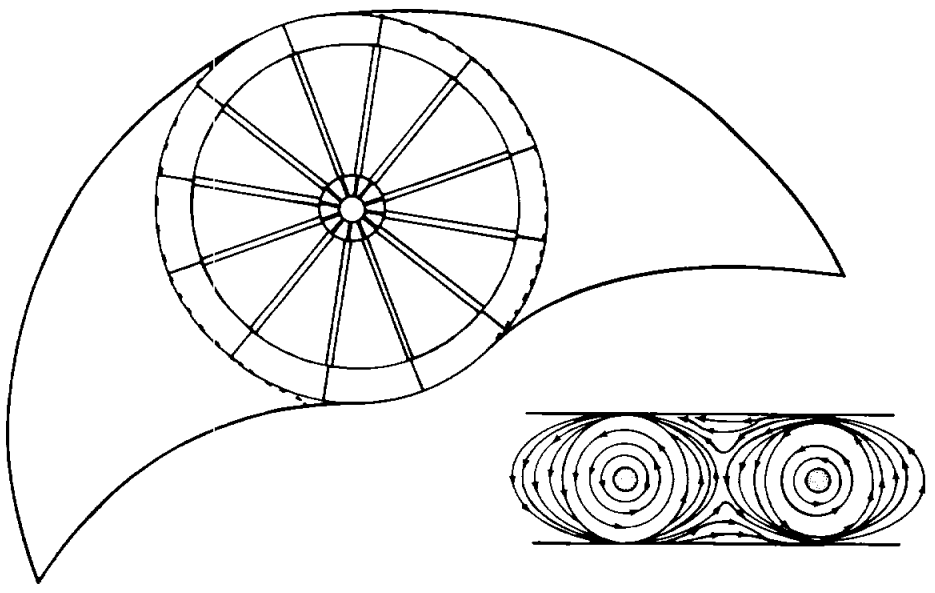
Boxes, bags, papers., etc., on or under stairs or in halls can start a fire while blocking your escape.

Daily trash should be kept in covered metal cans away from heat.

Dispose of all rubbish frequently.

October 7 - 13 is National Fire Prevention Week, although fire prevention is a year round responsibility. Conduct frequent inspections. When you eliminate the cause, you prevent the fire.

Science fiction becomes fact after five



Top view of Holt's spacecraft; lasers in center

Some people have written off intergalactic travel. We're stuck on this physical plane, they say, and who wants to spend 800 plus years on a spacecraft? Ideas are tossed around such as astronauts in flight raising children who would in turn raise their children, generation after generation, until the craft arrives at say Galaxy NGC-289.

Or astronauts could freeze themselves, snoozing along in suspended animation on auto-pilot. The onboard computer could wake them when they reach their destination, like in the movie *Alien*. And look what happened to them . . .

So we've been concentrating on our own solar system, and maybe Alpha Centauri four and a half light years away. But even the distance to Saturn seems prohibitive. Who wants to spend six years in a space capsule?

Well, Alan Holt, CG6, thinks he has developed a "propulsion" concept that may lead to a solution. A crew trainer by day, Holt has been working nights on physics theories that involve magnetic field line merging and the effects of hydromagnetic waves on the process. He finished a master's thesis on this topic and then, he says, "It appeared possible to me that this theory could be used in conjunction with laser-generated magnetic fields of a million gauss variety to create electromagnetic field patterns with special space-time relationships."

What Holt envisions is a spacecraft that would propel itself to distant stars and galaxies in short travel times. A pilot tunes in a specific location in the universe the same way you tune in a specific radio station or frequency.

Zip. Flash. You're hovering over Cygnus X-1 finding out the truth about black holes.

His theory is based on the assumption that Einstein's unified field theory is true: that there is a relationship between magnetic and gravitational fields. It also proposes that each location in the universe of space and time has associated harmonics which manifest themselves as electromagnetic wave forms.

"The key to the whole thing," Holt says, "is the ability to artificially generate this coherent, or special, electromagnetic wave form. If a resonance is established, the spacecraft would then jump from its location in space and time to a distant location where the artificially generated fields are a harmonic."

How do you find the harmonic, for example, of Sirius-B?

"That will be the result of an extensive research effort," Holt says.

"Everything has a gravitational field exerted upon it. We know that throughout the universe there is a hierarchal pattern: The Moon orbits the Earth, the Earth orbits the sun, the sun orbits the center of the galaxy, our galaxy orbits around the center of the local group of galaxies.

"There is a hierarchy of gravitational fields that goes along with it.

"If enough research is done, it won't be that hard to figure what the harmonics will be at a certain point. The key would be to determine the relationship of an electromagnetic harmonic to the structure or curvature of space-time."

Of course, before NASA starts building spacecraft and training crews, the theory will have to be confirmed. Holt emphasizes that he's publishing the theory now with the sole purpose of stimulating further research in related areas.

In his plan, Holt has even allowed a margin for error, to prevent landing in the molten center of a distant planet. "You aim for a point a few hundred thousand miles away from a star or planetary body," he says. "Then using a holographic display, the pilot operates a joystick to fly to nearby locations.

"It would still require skillful pilots," he adds.

Holt sees field resonance intergalactic space travel as being possible within his lifetime. "I'm working now on an in-depth technical paper that describes experiments that could be done in a lab to confirm the theory: essentially building small scale models, then generating strong magnetic fields and pulsing them to change the wave configurations. The paper also elaborates on the astrophysics involved.

If the theory is confirmed in the next two years, and if feasibility studies are conducted in the 1980s, and if developments continue in free-electron lasers that generate megagauss fields—"Depending on those first big 'ifs' we could have a test flight by 1990," Holt says.

His ideas don't violate Einstein's laws, but rather add to or transcend them. "You transcend space-time by going through a kind of hyperspace," says Holt.

Strap in. The commander is starting pre-resonance procedures. Consulting his flight plan, he determines which electromagnetic wave form will put the spacecraft 200,000 miles above the planet SB-5. He enters the required laser frequencies into a computer, adding in magnetic field ripple wavelengths and the electron beam energy, and then programs the lasers for the sequence of pulsations required.

Stand by residents of SB-5, you are about to see a UFO.

The grind and the polish

Initial grinding and polishing are underway at the Perkin-Elmer Corp. in Danbury, Connecticut, manufacturing the huge primary mirror, the major optical element of the Space Telescope to be launched from the Shuttle in 1983. About 300 pounds of glass will be removed in the process which will take two years.

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