



Space News Roundup

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No. 16



Discovery is hoisted Monday in preparation for mating with the external tank and solid rocket motors in Kennedy Space Center's Vehicle Assembly Building. The Space Shuttle is scheduled to begin roll out to Pad 39B early next week.

Discovery set for nighttime journey to pad

Discovery is scheduled to emerge under the stars Independence Day, bathed in halogen spotlights and the nation's attention as it takes aim for an early September launch.

Amid midnight ceremonies July 4, STS-26 is scheduled to begin a 4.24-mile, 5-hour journey to Launch Pad 39B, where it will remain poised for two months awaiting liftoff. An updated September launch target was announced Tuesday by Rear Adm. Richard Truly, associate administrator for space flight, following a major review of the Shuttle's status. For several weeks, officials had viewed a previously announced August launch target as optimistic.

"There was no single thing that caused the slip; it was just a series of small things," explained Jay Honeycutt, deputy manager of the Shuttle program office at JSC. "It was somewhat associated with the new way we're doing business. It was a series of minor problems and a lot of paper that had to get closed. There's just a greater awareness of the paperwork and the requirements we've placed on ourselves to make sure it's all closed before we move

past major events."

Under the new schedule, a 20-second flight readiness firing of the Orbiter's main engines will be conducted in late July, possibly July 24, and a firm launch date probably will not be known until after that test. The final full-scale, full-duration test firing of a redesigned solid rocket motor, Production Verification Motor-1 (PVM-1), also is slated for late July.



STS-26

The Return to Flight

In announcing the update, Truly said he is pleased with the progress of the Shuttle program. "Hard work by a lot of people is paying off and the program is coming along nicely," he added.

Mating of the Orbiter to the rest of the Shuttle components was completed Saturday and went smoothly, Honeycutt said, and the imminent roll out to the pad will be a motivational boost. "In particular, it will be a big boost for the workers at the Cape. It will be representative of a job well done by them," he added.

The Shuttle's exit from the Vehicle Assembly Building (VAB) is scheduled to take place at 12:01 a.m. EST Monday, 11:01 p.m. local time Sunday. The Shuttle Interface Test, a check of

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New policy to help speed senior promotions

New JSC senior promotion procedures are in effect for GS/GM 14 and 15 positions that are filled through the Competitive Placement Plan (CPP).

Promotion opportunities that are announced under the CPP now may be forwarded to JSC's deputy director by directors, program managers and staff office chiefs without the concurrence of a Senior Promotion Board (SPB) review, said Human Resources Director Jack Lister.

Managers may initiate the promo-

tions any time after an employee has been in the position for six months. The requests will be processed through the Human Resources Office and forwarded, with appropriate recommendations, to the JSC Deputy Director for approval.

"This is designed to give directors more authority to promote their own people," Lister said. "I think that's a positive step as far as morale and management improvement."

JSC Director Aaron Cohen said the

decision to change the promotion procedure grew out of a recent culture survey that expressed concern over the management of senior promotions.

"This approach in managing our senior promotion resources is consistent with my desire, wherever possible, to delegate human resource decision-making responsibilities to the lowest practical organizational levels," Cohen said.

Previously the SPB was scheduled to meet once every six months to

consider promotion recommendations. But Lister said mission requirements and SPB members' schedule conflicts frequently got in the way of regular meetings, delaying some promotions.

"This is going to make the promotion process quicker, and it is going to give directors more authority," Lister said. Previously a director couldn't promote people to the 14 or 15 level without SPB approval. Now he has the authority to do that if a competitive selection has taken place."

The rationale for requiring promotion board approval was that senior staffers are expected to represent the center at Headquarters and to lead key activities, and therefore care should be taken to select the right people for promotion, Lister said.

The SPB will continue to meet semiannually and be comprised of the JSC senior staff, but it will deal only with those promotions that are not advertised through the CPP.

Fellow employees donate leave

Friends' generosity benefits heart attack victim

A new program that allows employees to donate annual leave to fellow workers for use as sick leave has proved a blessing for Aerospace Technologist Richard Kirbie, the recipient of 260 hours of leave from his colleagues.

Kirbie, who works in the Operations and Network Interface Office of the Mission Operations Directorate, is recovering from a heart attack he suffered in March. But his 49 days of combined sick leave, annual leave and advance leave ran out several weeks ago. Without the help of his co-workers, Kirbie would now be on unpaid leave.

"The bills continue whether you're sick or not," he said recently. "But the NASA people have responded. It's kind of a reflection on NASA as a whole; NASA is a family, and a family takes care of its members. This is an extension of the personalities

of NASA employees. I can't tell you how much I appreciate them taking away from their families and giving to someone else."

Kirbie is the first JSC employee to receive leave donated by his friends under the new program. Congress and the Office of Personnel Management adopted the policy on a temporary basis for the current fiscal year. Legislation may be passed soon to make the program permanent, Personnel Management Specialist Sue Leibert said.

"I think people are really positive about it," Leibert said. "It's a chance to help fellow employees." Kirbie's leave was donated by 11 employees in amounts ranging from four to 46 hours, and more donations are coming in, she added.

Now, several cases of donated leave are in the works for other ill employees at JSC. "If the program

is officially approved to be permanent, I think it will really catch on," Leibert said.

One of those who donated leave to Kirbie was Jim Brandenburg, his supervisor. "We started to pursue the possibility of donating leave to him the week after he had his attack," Brandenburg said. "When we first brought it up, there were several people who had worked with Richard over the years that came by and expressed interest. I think the policy's a good thing. Last year, I ended up losing two or three days of leave just because I never took it. Now you can use it to help someone."

That type of help has ensured that Kirbie, who is recovering well, will be able to return to work without having missed a day of pay.

Any employee who has been affected by a personal emergency on or after Dec. 22, 1987 may be eligible



Richard Kirbie

for the program and may submit an application to become a leave recipient. The transferred leave may be used on a current basis, retroactively substituted for leave without pay, or used to liquidate advanced annual and sick leave.

Commercial launch manifest unveiled

The United States' first commercial space launch manifest was unveiled Monday as Secretary of Transportation Jim Burnley praised the private sector's initiative.

"Commercial space launch activity may well represent the most active part of America's non-military space program over the next several years," he said. "U.S. firms plan to launch 20 payloads through 1992, adding nearly \$1 billion and thousands of jobs to the U.S. economy. The President has called on the private sector to direct its resources toward achieving many of the nation's ambitious goals in space and the private sector is answering that call."

The Department of Transportation (DOT), which has responsibility for licensing commercial space launch activities, released a comprehensive list that included 20 launches by American firms through May 1992.

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JSC

People

Greenwood receives secretarial award

Lottie R. Greenwood recently was presented with the Marilyn J. Bocking Secretarial Excellence Award, an honor that includes \$500 cash. Greenwood received the



Greenwood

award for her work as secretary for the Training Systems Contract Source Evaluation Board (SEB). After working with the SEB for about a year, she will return to her permanent assignment as a secretary in the Mission Control Center systems Support and Integration Branch.

She is a "secretary without equal in her dedication" and has performed her work in developing Training Systems Contract presentation materials over and above her regular duties, according to her award nomination. The presentation material included sophisticated charts and graphs that stretched the limits of her word processing equipment. She also found a way to electronically transmit revised briefing material to Headquarters. She has handled the large workload efficiently and with a high standard of excellence.

JSC Golf Association competes in tournament

Winners of the JSC Golf Association's (JSCGA) June 11 tournament at Cypresswood Golf Club included Charles Wilson, Horace Solomon and Chris Mitro in Group I. Group II winners were Jack Brown, Dave Price and Jim Marshall. Also placing were Dwight Baker and Bob Duffy.

The Cypresswood tourney had been rained out twice before it was finally played. Gene Hafele is president of the JSCGA.

JSC

JSC

Dates & Data

Today

Cafeteria menu—Entrees: barbecue link (special), liver and onions, broiled codfish, deviled crab, seafood gumbo. Vegetables: buttered corn, green beans, new potatoes.

Monday

Seabrook celebration—An independence Day celebration will be held from 10 a.m. until dark at Pine Gully Park off of Toddville Rd. in Seabrook. Food, beverages, games, crafts, rides, a ski show, a sky diving show and other events and booths will be offered. A children's parade will begin at 9 a.m. at Baybrook Park. For more information, call 474-4015 or 474-3201.

EAA badging—Dependents and spouses may apply for photo ID badges from 6:30-8:30 p.m. at the Rec Center.

Cafeteria menu—Entrees: chili and macaroni (special), spare rib with sauerkraut, parmesan steak, barbecue sliced beef, french onion soup. Vegetables: ranch beans, English peas, mustard greens.

Tuesday

Physical fitness class—Sessions begin meeting at 6:30 a.m. and continue every Monday, Wednesday and Friday through Sept. 23.

Cafeteria menu—Entrees: corned beef hash (special), baked ham with sauce, liver and onions, meatballs and spaghetti, split pea soup. Vegetables: buttered cabbage, cream style corn, whipped potatoes.

Wednesday

Educational grants due—Applications for educational grants from the Houston Area Federal Business Association (FBA) are due. To be eligible you must be an FBA member or legal dependent of a member. Grants of \$500 will be awarded to full-time students and \$250 grants are awarded to part-time students. An overall grade point average of 2.0 is required.

Cafeteria menu—Entrees: barbecue link (special), roast pork and

dressing, cheese enchiladas, seafood gumbo. Vegetables: Spanish rice, pinto beans, turnip greens.

Thursday

"Saint Joan" opens—The play "Saint Joan," starring New York actress Natsuko Ohama, will be presented by the JSC-EAA and the University of Houston-Clear Lake as part of the Houston Shaw Festival nightly July 7-10, July 21-22 and July 30-31 at UH-CL's Bayou Theatre. Tickets for a special preview performance July 7 are \$3; all other tickets are \$5 for NASA employees and contractors. For information, call 488-9334.

Cafeteria menu—Entrees: chicken fried steak (special), chopped sirloin, fried perch, roast beef with dressing, beef and barley soup. Vegetables: whipped potatoes, peas and carrots, buttered squash.

July 8

Oxychem 4x2 mile relay—Male, female and mixed teams will compete at the San Jacinto Monument at 7 p.m. July 26. Those who wish to sign on with a team must do so by July 8. Entry fee is \$4. Call Patrick Chimes, x32397, for information.

Cafeteria menu—Entrees: fried chicken (special), baked fish, beef stroganoff, fried shrimp, seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

July 9

Olympic gymnastic finals—Gymnastics finals for the Seoul Olympics will be July 9-10 at the Summit. For the men's optional finals, 2 p.m. July 9, tickets are \$3.50; for the senior women's individual finals, 8 p.m. July 9, tickets are \$4.50; and all-day tickets for the junior women's optional finals and senior men's and women's finals July 10 are \$8.50. Tickets are available through the JSC-EAA in Bldg. 11.

Astros vs. Mets—Tickets for field-level seats July 9 in the Astrodome are on sale through the JSC-

EAA in Bldg. 11 for \$7.

July 11

Macintosh users meet—The NASA Area Macintosh Users (NAMU) will meet at 7 p.m. in the RSC cafeteria at 600 Gemini. Admission is free, and anyone interested in Macintosh hardware and software is welcome.

Pressure Systems Week—Pressure Systems Week, with a theme of "Pressure in the Home" begins July 11 and will continue with daily one-hour presentations on the safe handling of pressure containing devices in the home through July 14. Presentations will be given at 10 a.m. in the Boeing FEPC MIC room and at 2 p.m. in Bldg. 350, Rm. 130 on July 11; at 10 a.m. and 2 p.m. in the Rec Center Rm. 204 on July 12; at 10 a.m. in the Bldg. 226N Learning Center and 2 p.m. in Bldg. 7, Rm. 141 on July 13; and at 10 a.m. and 2 p.m. in Bldg. 9, Rm. 113 on July 14.

Scuba class—A five-week class begins at the Rec Center and will meet from 6:30-9:30 p.m. each Monday and Wednesday. Initial fee is \$45, and an additional \$80 will be due at the first class.

July 13

Professional secretaries meet—The Clear Lake/NASA Area Chapter of Professional Secretaries International will have a social and dinner beginning at 5:30 p.m. July 13, and a regular meeting following at 7 p.m. Featured speaker will be Dr. Paul Fine from the Baylor College of Medicine on "What's New in OB-GYN." Cost of dinner is \$9. For reservations, call Mary Todd, 282-3942.

July 14

"Candida" opens—The play "Candida" will be presented by the JSC-EAA and the University of Houston-Clear Lake as part of the Houston Shaw Festival nightly July 14-17, July 23-24 and July 28-29 in the UH-CL Bayou Theatre. Tickets

for a special preview performance July 14 are \$3; all other tickets are \$5 for NASA employees and contractors. For information, call 488-9334.

July 16

Spaceweek banquet—The keynote speaker for the Spaceweek National Banquet at the Hobby Airport Holiday Inn will be Donald Fink, editor-in-chief of Aviation Week and Space Technology. For more information, call Spaceweek Headquarters, 480-0007.

JSC-EAA river raft trips—Ticket sales will continue through July 11 for two JSC-EAA trips to raft down the Guadalupe River July 16. A day trip for \$27 and an overnight trip for \$69 are offered. For more information, call x35350.

July 20

Men's Open C tourney—This is the final day of registration for a Men's Open C softball tournament planned July 23-24 at the Rec Center. Entry fee is \$95.

July 26

Lunch and learn—Stefan Roesler from the Department of Mechanical Engineering, University of Stuttgart, West Germany, will be in the Bldg. 3 cafeteria 11:30 a.m.-12:30 p.m. for a "Lunch and Learn" meeting sponsored by the AIAA Thermophysics Technical Committee. Anyone interested is welcome to attend. For information, call Adul Hye, 333-6515.

Aug. 4

Ballroom dancing class—Professional instruction in beginning, intermediate and advanced ballroom dancing begins and will continue each Thursday for eight weeks at the Rec Center. Cost is \$60 per couple.

Aug. 26

SEDS conference—The Texas area chapters of the Students for the Exploration and Development of Space will sponsor an international conference at the Nassau Bay Hilton through Aug. 28. For more information, call Peter Lange, x30850.

Swap Shop

Property & Rentals

Lease: Friendswood, 3-2-1, all elec., near elem. school, \$450/mo., \$100 dep. 280-2683 or 480-0114.

Rent: Lake Livingston waterfront, 3-2, furnished, cov. decks, pier, fishing, swimming, skiing, new cond. 482-1582.

Sale: 4 Crystal Beach lots on Bolivar, one or more lots each, 50' x 100', reasonably priced. 921-7212.

Sale/Lease: Condo, 2-2, split bedroom plan, W/D, refrig., \$415 or \$35,000 cash. Rick, x36156 or 480-1218.

Sale: Piper's Meadow, 3-2-2, 1550 sq. ft., \$65,000, FHA 10.5% fixed rate, assum. Sam, x31597 or 488-9742.

Lease: Friendswood, Heritage Park, 3-2-2, FPL, large kitchen, fence, fan, new paint, new section, \$575/mo. 482-6609.

Sale: 1980 Wayside mobile home, 3-2-2 with wet bar, FPL, balcony kitchen, all appl., W/D. 480-8142 or 484-0858.

Sale: Heritage Park, 3-2-2, close to school, \$58,000 or assume 11.5% 24-yr. loan, low down pmt., \$658/mo. 996-0702.

Lease: El Lago, 4-2-2, formals, lg. family rm., FPL, fans, lg. fenced yd., deck, comm. pool, tennis, avail. Aug. 1, \$850/mo. 532-4237.

Sale: Pasadena/So. Houston, 3-1.5-2 brick, carpet, miniblinds, drapes, appl., fenced, near schools, ex. cond., \$47,900, assum. 8.5% loan, \$338/mo., \$18,900 equity, \$5,000 down, owner finance remainder. 941-5908.

Lease: Pearland/Dixie Hollow, 3-2-2, FPL, fence, new paint, inside util. room, split bedroom, formal dining room, front porch, \$550/mo. 482-6609.

Lease: CLC, Baywind II condo, 2-2-2, FPL, wet bar, W/D, pool, tennis, \$450/mo. C.W., 282-1871 or 280-8796.

Cars & Trucks

'83 F100 Ranger truck, 4 cyl., 4 spd., A/C, P/S, AM/FM, 70K mi., good cond., \$2,600, OBO. Johnny, x34189 or 486-2089.

'75 Ford Elite, ex. cond., \$800, OBO. 941-2495.

'79 Toyota Corolla, 5 spd., A/C, AM/FM, cass., good cond., \$1,500, Stan, 280-9720.

'76 Ford Elite, sport package, shop manuals, 85K mi., ex. cond., \$1,400, OBO. x34402 or 532-2059.

'79 Camaro, new paint, black/red int., new tires, ex. mech. cond. 280-7625 or 486-7590.

'77 Delta 88 Oldsmobile, new tires, new trans., has timing problems, \$425, Ronnie, 943-7002.

'88 Firebird, 6 cyl., loaded, assume loan., \$300/mo. 333-7098.

'76 Buick Century, A/C, AM/FM, cass. stereo, good cond., \$850, 332-0829.

'69 Buick Rivera, new tires, new paint, auto., good cond., \$1,000, OBO. x38965 or 225-1475.

'77 Ford Van, Econoline 150 Cargo, A/C, Captain's chairs, paneling, carpeting, mag. wheels, custom sound system, \$4,500. 482-0065.

Cycles

'86 Honda 150 Elite, 10K mi., windshield, carrier and helmet, ex. cond., \$800. Samouce, x35053.

'79 Yamaha 750-Special, ex. cond., garaged, many extras, \$1,550. John, x37219 or 488-5706.

'85 Honda 450 Nighthawk, midnight blue, 3,500 mi., ex. cond., \$1,400, incl. an "ARAI" supervent helmet. James, 996-1730.

'82 Honda 110 3-wheeler, good cond., \$300, OBO. 482-1602.

Boats & Planes

Lease: Floating boat slip, Portofino Harbour, avail. now, up to 40', 5 min. from bay. Ritz, x38501 or 780-2391.

'83 Hobie, 16' Catamaran, orange rainbow sail, sailbox, trailer, \$1,980. Karl, x35067 or 333-3544.

Household

Antique dining table w/2 attach. extensions, \$150. 474-3181.

Sofa & love seat, dk. blue w/sm. beige & rust pattern, ex. cond., \$400; ginger jar lamp, rust colored, \$15. 486-8865.

Maple dresser & headboard w/bookcase, \$250; antique dresser with mirror, \$250; 6 dining room chairs, need new seats, \$100/set; bedside commode, \$10. Jim Buss, 280-1652 or 480-2893.

Dishes, Pfaltzgraff Village pattern, service for 8, plus many accessory pieces, \$250. 471-2408.

Round dinette table, solid wood, good cond., \$40, OBO. Cindy, x36151.

Girl's bdrm. set, solid wood, canopy double bed w/frame, footboard headboard, double dresser with mirror, desk with chair, good cond., \$300. 326-3455.

Small refrig., good cond., \$75, OBO. x38285.

Sears full size Open Hearth bed w/Sears-O-Pedic mattress and box springs, full size rattan sofa sleeper. Betsy, x30325.

Chrome and glass shelves, navy vase w/silk flowers, formal dining table w/four chairs and matching china cabinet, stereo w/cabinet, Alzena. 280-7635 or 996-9033.

GE single wall oven, 25 3/4" wide x 25 1/4" high, matching GE stove top, 21 1/4" x 30", turquoise, ex. cond. \$65 each or \$100 for

pair. 941-5908.

Solid Oak bookcase, 6.5' x 3', may be used as entertain. center, was \$1,000, now \$480. Pat, 480-7406.

Contemporary sofa, 90" long, off-white flame-stitch w/earthtones, ex. cond., \$50. Malinda, 480-5132 or 486-5546.

Washer & dryer, in good cond., \$300 for both. 334-2379.

GE portable 5" color TV, w/stereo, AM/FM rem. cass., \$190. C.W., 282-1871 or 280-8796.

Dining table w/6 chairs, china cabinet, serving cart, \$500; several living room pieces. 488-0137.

Sears frostfree refrig., 15.2 cu. ft., coppertone, \$150. 480-9102.

Traditional oak dining set w/clawfoot table, 6 chairs, full china, curio, bookcase, clawfoot coffee table, \$1,500; couch, floral pattern, \$95; king size waterbed w/6-drawer pedestal, Hibernation series mattress, \$150. Allen, x38999 or 486-6681.

RCA B&W 10" Solid State TV, 3 channels, 4 years old, \$25. Beth, 480-2817.

Baby chest, \$30; 2 blue living room chairs, \$50; coffee table, \$20; 2 end tables, \$40; rocking horse, \$15; steel shelves, \$28-\$35; steelcase desk, \$80. Bruce, 280-7536.

Audiovisual & Computers

256K RAM chips 120ns, was \$155 each bank, now \$200, 6 left; 256K RAM chips 100ns, was \$200 each bank, now \$250, 4 left. Mark, 333-7347.

IBM PC Compatible Clone, 2 360K drives, 640K RAM, color monitor w/Hercules card, printer, \$850. 484-2411.

T199/4A, 48K RAM, color monitor, 3 disc drives, Epson MX-80 printer, T1writer spreadsheet and other programs, spare T199/4A, \$200, OBO. Jim, x37238, 333-4504.

Epson printer, FX80 printer with both tractor/friction feed, upgrades include 3K buffer and DOTS-PERFECT, \$225. 481-0928.

4.77-10MHz IBM PCXT clone, 512 KB memory, one 360KB FD, 20 MB HD, mono/graphics, serial/parallel/clock, AT keyboard, \$975. Scott, x36818 or 280-9656.

Hewlett Packard 28C scientific calculator, HP's newest and most advanced, symbolic math, integrals, derivatives, named variables, like new, all manuals, \$150, OBO. Stewart, x30709 or 480-6783.

Compaq Deskpro, 640K, dual drive, amber monitor, daisy printer and all cables, paper, ribbons, ex. cond., \$950. 480-9102.

Wanted

Want folding camp tent trailer for 6-8 in good cond. at reasonable price. Jeff, 282-7744 or 996-1907.

Canoe wanted, any size, in good cond. Jeff,

282-7744 or 996-1907.

Want used Hobie Cat 16' or Sun Fish for children to learn to sail. 485-0900.

Need riders for vanpool, Bear Creek-Copperfield area to Rockwell bldgs. 555 & 600 Gemini. Joe Lewis. 282-3159.

Two seats available, 1988 van from Braeswood and South Post Oak to NASA area. Richard, x37557.

Want dune buggy; elec. W/D in good cond. Allen, 282-3299 or 482-4063.

Want RGB/color monitor for Commodore 128 or other systems. 488-1444.

Want elec. piano keyboard with full size keys under \$250. 282-3004.

Need babysitter for one-year-old in our CLC home, light housekeeping, Monday thru Friday, ref., please. 480-9545.

Want freezer, frost free, 15 or 19 cu. ft., very good running cond. and inexpensive, ext. cond. is not important. Earl Rubenstein, x34807 or 326-2354.

Musical Instruments

Drums, beautiful Tama Imperialstar, complete double bass set (13 drums) plus numerous percussion items, ex. cond., BO. 482-0065.

Hammond organ, classic 2-manual organ with slider stops and no "boom-chicky-boom" circuits, looks and sounds great, \$495. Allen, x38999 or 496-6681.

Bundy II tenor saxophone w/case, ex. cond., \$700. Spurgeon, x38965 or 225-1479.

Photographic

35mm Pentax Spotmatic-F camera with 3 close-up lens, 2 135mm lens, 1 28mm lens, and 1 49mm lens, flash attach., light case, \$150. Beth, 480-2817.

Pets & Livestock

AKC registered cocker spaniel puppies, all colors, all shots, wormed, \$150-\$200. Linda, 481-5467.

Free dogs, 1 yr. old males, 25 lbs., all shots. 280-7328 or 482-1745.

Free cat, 5 yrs. old. 282-3863.

Free, Wire-hair Fox Terrier, male, 4 yrs. old, neutered. x30693 or 554-7306.

Free kittens, 5 wks. old. Bob, 480-1735.

Lost & Found

Lost cubic zirconia, gold bracelet, sentimental value only, reward. Kathy, x34972 or 996-1410.

Personal

Will the person who bought the VIC-20, Timex 1000, and Sharp monitor from me please call, I have additional info. for you and have lost your name and mail code. Chris, x30794 or 941-0138.

Retirement party for C.E. Charlesworth, Giluth Rec. Center, Thurs., July 14, 5:00-7:00

p.m. Tickets are \$6 and will be sold through July 8, no tickets will be sold at the door.

Miscellaneous

Excellent housecleaning help, reasonable rates. Beth, 326-1540.

File cabinet, 4 drawer, metal w/lock, \$65. 474-3181.

Marlin Mod 43, 12 ga., shotgun w/"long" magazine, silver dedication plaque, collector's item, \$350. Samouce, x35053.

'80 Ford Fairmont for parts, \$200; 7 pc. living room furniture, solid wood, country style, \$300, OBO. Sequita, x32434 or 335-1895.

Heath electronic test equip.; 2 O-scopes, RF SIG generator, capacitor tester, sine/square wave generator, misc. parts, \$50. Jim Buss, 280-1652 or 480-2893.

Small wood TV stand, \$5; roller derby skate board, \$5; roller skates, \$4; girl's 16" bicycle, \$10; dog house, \$30; window shade, 36" x 48", \$4. 488-7113.

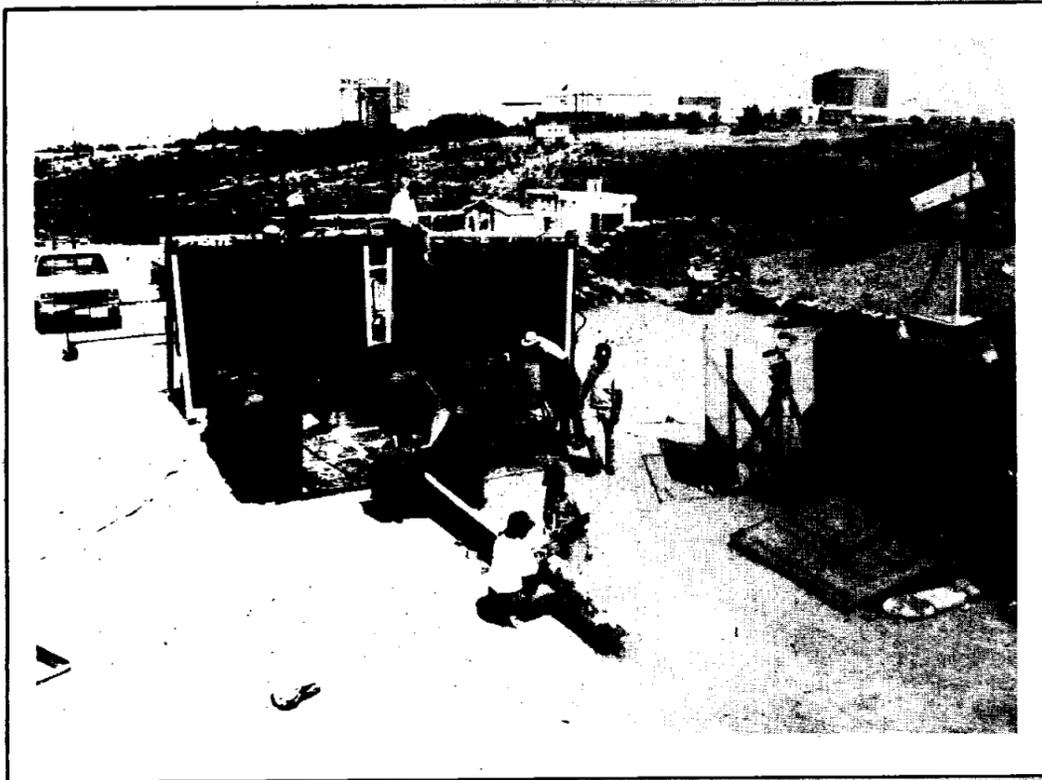
Pre-68 small block Chev. intake manifold, \$30; 4-barrel Holly carb., plus low profile air cleaner, \$30. x34402 or 532-2059.

Portable "Mr. Meat" smoker, new in carton, 15 lb. meat capacity, \$15; 10 galv. I beam type fence posts, 8.5' long, \$3 ea.; Bird Termaline Wattmeter, Mod. 611, 15/60 watts, 30/500 MC, ex. cond., \$75. 921-7212.

Battery charger, metal shelf w/6 shelves; hamster/bird cages; 5 gal. can; air pumps; solder/propane welding unit. Bauch, 333-3382.

4 15" x 8" Chevy Rally Wheels from 1988 pickup, incl. beauty rings, center caps and lugs. Ron, 280-7329 or 332-3732.

Colt car-15 with 4X scope, clips, sling, \$495, OBO; SWD M11/9mm w/extra clips, new in box, \$285, OBO; 3 Porsche five-spoke alloy rims w/tires, BO. Ronald, 464-8694.



Left: An arroyo separates the hypervelocity impact test system from the nearby White Sands laboratory complex in the background. Kneeling beside the light gas gun in the center of the photo are Kenny Oser, facing camera, and Ed Denzler; walking toward the camera is Jim Elliot; Dave Hicks leans over; Dave Huskey wears a hat for desert shade; and Joel Stoltzfus sits on top of a protective barricade.

HAVE LIGHT-GAS GUN, WILL TRAVEL

Hypervelocity impact researchers go west

By David Pippen

Chief, White Sands Laboratories Office

An ever dwindling number of us still remember Richard Boone as the TV hero Paladin. I have fond memories of him standing stalwart, dressed in black, outfitted to the hilt with sidearm, rifle, ammunition, with his faithful steed, attacking the bad guys of the day. The space business, it seems, has its share of "bad guy" problems that must be attacked with the same diligence and, hopefully, with the same success.

For example, space activity over the years has left a disconcerting amount of man-made debris in orbit. This debris, as well as the micrometeoroids generated by nature, provide a growing level of hazard to our space missions. Simply stated, this natural and man-made debris speeds around in space at velocities exceeding 10 kilometers per second a little faster than 6 miles per second. Rifle bullets don't even reach speeds of 1 mile per second.

Space scientists and engineers are concerned about what will happen to space hardware if it is hit by this high-velocity debris. We must have tank farms up there to maintain operations. Basic information is needed to help protect the hardware from impact. Of course, the likelihood of an impact increases in direct proportion to how long the mission lasts, and with Space Station we are anticipating 30 years or so of service life. As our attention turns more and more toward Space Station, questions concerning orbital debris impact are being more vigorously researched.

JSC's Hypervelocity Impact Research Laboratory (HIRL) has been diligently studying the effects of hypervelocity impact of projectiles upon various materials for years. The lab uses a light-gas gun to fire

tiny projectiles at up to 9 kilometers per second at various targets and simulate the effects of hypervelocity collisions. The gun actually is a two-stage launcher that pressurizes a light gas — usually hydrogen — to accelerate a projectile to hypervelocity.

The hypervelocity lab recently needed to perform its first tests on pressurized materials such as oxygen, that will need to be stored in a Space Station tank farm. But potential safety problems precluded testing at the laboratory in Bldg. 31.

The Laboratories Office at JSC's White Sands Test Facility has been getting into position to subject pressurized vessels to hypervelocity impact in support of Space Station and other projects. Pressurized vessels are of particular concern since surrounding hardware could be damaged if orbital debris penetrated a pressurized tank and allowed a violent pressure release. White Sands is well suited for such testing because of its remoteness and the experience of its people in testing other hazardous fluids and materials under all sorts of conditions.

So, JSC had the "gun" and White Sands could "corral" the "bad guy." Could the hypervelocity lab "travel" to White Sands with its gun? The answer turned out to be a resounding yes during tests conducted June 7 through 13.

A while back, Jeanne Crews, manager of the hypervelocity lab, and I were discussing the merits of light-gas gun bore sizes in casual conversation. In the course of our conversation, the issue of testing beryllium came up. Beryllium, which is hazardous in powdered form, may be used to collect cosmic dust particles aboard Space Station. We decided that White Sands could provide a simple facility and expertise to safely test

the beryllium if the hypervelocity lab could provide the gun and the expertise to install it, shoot it and interpret the results. We decided to shoot some pressurized vessels at the same time, since there was no data available on such impacts.

The hypervelocity lab's task was to provide specifications to White Sands so that the gun could be moved from Bldg. 31 and quickly set up in a remotely operated test area. White Sands had to decide where to locate the test, how to provide the necessary power and instrumentation, what safety measures were necessary and how to provide the vacuum conditions required for the gun.

Once Crews and Kenny Oser, the "gunner," arrived at White Sands things really began to come together. Joel Stoltzfus, the White Sands NASA project engineer, and members of the Lockheed test team — Dr. Harold Beeson, Danny Fernandez and Ed Denzler — put the plans in motion for activating the system. Rick McClenagen's mechanical facility designs would be put to the test.

Support personnel were called in to prepare for the first "shot." Photography engineer David Huskey, slowed only slightly by the crutches needed to support his broken leg, issued setup assignments to cine technician Sally Riggs, who handled the large high-speed cameras with ease. Technician Craig Olsen hustled around setting up and operating the cameras. Frank Benz, the White Sands explosion expert, paced around the area eyeing critical locations for cameras and predicting the outcome of the first pressurized shot. Dave Hicks, electrical engineer, and Jim Elliot, electrical technician, seemed to fuss too much about the instrumentation and control

circuits they had designed and installed. Chris Barnet, electrical design and support supervisor, ended up designing a special circuit over the weekend to help recover from a power failure.

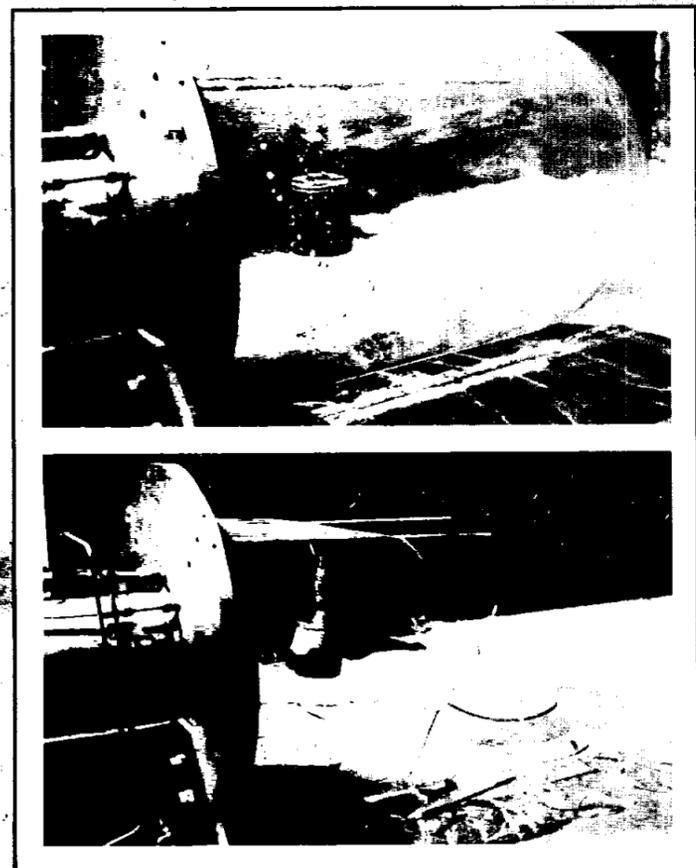
Then the moment for the first shot came. People were gathered around the remote video monitor as the countdown began. It was sort of anticlimactic for the White Sands people when the hammer was released — there was no explosion cloud and the ground didn't shake. But tensions eased and excitement increased as they traversed the 1,000 feet across the arroyo to the test area.

Success! The projectile had hit the target.

Once the baseline test was done, everyone settled down to the grueling test schedule. Working until dark every day including Saturday and most of Sunday, the team performed almost a dozen shots. There were some hypervelocity testing firsts — impacting a pressurized vessel of hydrazine, hitting a filament-wound lightweight bottle of nitromethane pressurized to 3,000 pounds per square inch and striking a toxic metal, beryllium. The tests also examined how hypervelocity projectiles melted through shields before hitting target containers.

But everything wasn't perfect. A site power failure knocked out electrical circuits and damaged some instrumentation. One day of strong winds caused everyone misery, especially the Houston people who were used to getting wet rather than sand blasted. And every once in a while the gun would rebel against its new environment.

The exercise demonstrated once again that when you give a NASA team a job, wherever they're from, the job gets done. Richard Boone, watch out! Perhaps a posse is better than one hero fighting the battle alone.



Above: Joel Stoltzfus, left, Jeanne Crews, center, and Frank Benz, right, view the remains of a pressurized Kevlar-wrapped oxygen bottle shot with the light-gas gun. Left: Before and after photos show what happened to a pressurized vessel containing nitromethane. The glass bell jar helps create a vacuum around the target.

Photos by Craig Olsen and Sally T. Riggs

Spaceweek

'Space: A Commitment to Our Future' is this year's theme

By Marie Simon

Special to the Roundup

From coast to coast, a network of cities will be celebrating Spaceweek '88 with the common theme of "Space: A Commitment to Our Future." Headquartered in Houston, this year's Spaceweek—the eighth annual recognition of manned spaceflight—is scheduled for July 16-24.

"Although Spaceweek is a national event, JSC should take pride that we gave birth to manned space flight," said Dennis Stone, president of Spaceweek.

"The national commitment theme was selected in part because of the need for Americans, during this presidential year, to take a long look at the American space program and make a commitment to support NASA's programs—from the Space Station to manned missions to Mars," said Stone. "We at Spaceweek also hope, as do other space organizations across the country, that each of the presidential candidates will consider a long-term commitment to the space program an important issue in this year's election."

The official spokesman for Spaceweek '88 is retired astronaut Walt Cunningham, who was pilot for Apollo 7 in 1968.

Cunningham plans to personally buttonhole the next president for this cause. "We've lost sight of our \$100-\$125 billion investment, and seem reluctant to capitalize on it," Cunningham pointed out.

Spaceweek activities nationwide will range from symposiums, stargazing parties and museum exhibits to a space fashion show in New York City.

Locally, coordinators are gearing up

for a multitude of space-related activities.

- On the morning of Saturday, July 16, the 1988 Spaceweek Parade will travel on NASA Road 1 from Kirby Drive moving west to the JSC main gate. The Houston Space Society is sponsoring marching bands, VIP cars, displays and floats (including the Apollo space suit mock-up float). For starting time, contact Spaceweek headquarters, 480-0007.

- A 5-kilometer Spaceweek Run also is to take place Saturday. Contact the Lunar Rendezvous Committee at 532-1254 for details.

- More than 100 model rockets are to be flown in honor of Apollo 11's 19th Anniversary behind the Saturn V at JSC on July 16 (July 17 is the rain date).

- Highlighting Spaceweek, the annual Spaceweek National Banquet will begin at 6:30 p.m. July 16 at the Hobby Airport Holiday Inn. Keynote speaker Donald E. Fink Jr., editor in chief of Aviation Week and Space Technology magazine, will focus on the 1988 Spaceweek theme. Other speakers include JSC Director Aaron Cohen, industry leader Bob Minor and Dennis Stone of the New Initiatives Office. The Spaceweek Banquet will begin with a social hour at 6:30 p.m. with the program and dinner following at 7:30. Ticket sales end June 30, and no tickets will be sold at the door. Call the Spaceweek office for more information.

- "Advances in Medicine from Space Exploration: Gifts from the Future," will be the topic of a free public symposium to be held July 19 from 10 a.m. to 12:30 p.m. in the Bldg. 2 auditorium at JSC. Sponsored by the Clear Lake Chamber of Com-

merce, the program will focus on subjects such as lasers in surgery, advances in rehabilitation, the Space Station medical station and the promise of future medical applications from current space research.

- Ed Donoly, chairman of Air Products and Chemicals for Commercial Development of Space Industry, will discuss U.S. competitiveness with Europe and Japan, and the use of space resources for the creation of "new wealth" from noon to 1:30 p.m. July 20 at the Houston Club.

- "Environmental Interpretation of Manned Flight and Space Photography," will be the topic of Astronaut Mary Cleave's discussion and slide presentation July 23. The presentation will begin at 2 p.m. at the Armand Bayou Nature Center. Laura Lehtonen, 474-2551, has details.

- A Spaceweek exhibition at Baybrook Mall provided by local aerospace companies will be on display July 16-17 and July 23-24.

- A noontime lecture series featuring daily speakers on space-related topics is planned July 18-22 in Houston. For details, call the Spaceweek office 480-0007.

- Space posters will be displayed in the Houston public libraries and various libraries in the surrounding areas, and at the Burke Baker Planetarium near Herman Park in Houston July 16-24. Observatory tours of the museum are scheduled for the same days. Contact Caroline Sumners, 526-1763 for further information.

- An evening lecture series with films on space-related subjects and displays is planned for July 18-21, at 7:30 p.m. at the INNOVA building in Houston. Confirmed speakers include: Gerry Griffin, president of



JSC Photo by Sheri Dunnette

Former astronaut Walt Cunningham says America should capitalize on its space program investment.

the Greater Houston Chamber of Commerce, and John Getter of Channel 11. "Gas Stations in Space" will be discussed by Lockheed engineer Larry Freeze, and JSC Planetary Scientist Dr. Wendell Mendell will speak on "Space Exploration and Beyond." Joey Carignan has more information at 480-0007.

- Books on space, poster exhibits and a "hands on" space exhibit for children will be on display throughout Spaceweek at the Children's Museum, 3201 Allen Parkway. For details, call 480-0007.

- Guided tours of Boeing Corp.'s Flight Equipment Laboratory may be scheduled by reservation only July 18-22 from 2-3 p.m. Visitors will see preparation of flight equipment used on Space Shuttle missions. The

laboratory is located at 1045 Gemini. Call Julia Sorrels at 280-2023 for more information.

- A noontime lecture series will be hosted by JSC engineer Larry Abbott and Dr. Kumar Krishen in the Bldg. 2 auditorium. Lectures will be from noon to 1 p.m. July 18-22 and are sponsored by the Galveston Bay Section of IEEE of JSC.

- Preferred Homecare Inc. is sponsoring an open house for the public on July 2 at its facility—1120 NASA Road 1 (Suite 225). For more information, contact Phyllis Shippen, 333-5555.

- As a non-profit organization, Spaceweek is supported solely through the donation of funds and services from companies that support the space program.

Roll out nearing

(Continued from Page 1)

mechanical and electrical connections between the mated Orbiter, external tank and solid rocket motors, began Tuesday and usually takes five days to complete, and the roll out could be delayed until Tuesday. On whatever day the move occurs, it will begin at 12:01 a.m. EST to take advantage of the normally windless early morning hours.

Once the Shuttle clears the VAB doors, it will be greeted by a bank of spotlights, a grandstand full of spectators, representatives from its flight crew and other dignitaries. KSC Director Forrest McCartney will give a brief speech before a book filled with the signatures of every KSC employee, a total of more than 15,000, is presented to the flight crew. The book will be flown aboard STS-26.

Launch manifest

(Continued from Page 1)

McDonnell Douglas, Martin Marietta and General Dynamics have contracts worth nearly \$1 billion to launch 18 payloads, 11 of them for foreign customers.

DOT's Office of Commercial Space Transportation has issued launch licenses to McDonnell Douglas and Conatec Inc. It previously granted mission approvals to Space Services Inc. and Martin Marietta, and has several other license reviews under way. The launch manifest will be updated periodically to reflect new launch contracts.



JSC Photo by Benny Benavides

DIRECTORS' CHAIR—JSC Director Aaron Cohen settles into a seat in the Shuttle Mission Simulator with members of the STS-26 crew. Cohen was in the motion-base simulator to run through STS-26 ascent aborts with Commander Rick Hauck, Pilot Dick Covey and Mission Specialist Dave Hilmers.

Divisions undergo minor adjustments

Two JSC divisions are being reorganized, one as a result of a changing orientation and the other to more clearly reflect responsibilities.

In the Mission Support Directorate, the changes affect the Systems Development Division (SDD). In the Mission Operations Directorate (MOD), changes have been made to the Facility and Support Systems Division (FSSD).

In SDD, the Systems Engineering and Network Integration Branch and three subordinate sections have been established, the MCC Systems Support and Integration Branch and Host Software Sections have been abol-

ished, and other organizations have been renamed.

Charles Olasky, SDD assistant chief, said the division has changed from a project-oriented organization to a functional organization with matrixed support for projects.

The renamed organizations and their leaders are: Project Management Office, Jack Seyl, acting head; Systems Engineering Section, C.W. Vowell, head; Integration and Verification Section, Thomas Ohnesorge, head; Network and Communications Systems Development Section, Garland Hector, head; Workstation Systems Development Section, Patrick Duffin,

head; Visual Systems Development Section, David Hogg, head; Host/Interface Processor Development Section, Jerry Milhoan, head; Software Systems Development Section, Shirley Hinson, head.

Jim Cole, FSSD deputy chief, said the changes in his MOD division are primarily name changes that more appropriately label the various organizations' responsibilities. The newly created Planning Section headed by Cheevron Lau within the Support Systems Branch provides one new capability, he said.

The FSSD Facility Support Branch has been renamed the Operations and

Network Interface Office. James R. Brandenburg manages the office.

The Mission Control Center Software Production Facility (MCC/SPF) Sustaining Engineering Section has been renamed the Control Center Projects Section. Gary Kane heads the section.

The Shuttle Mission Simulator Flight Design Computing Facility (SMS/FDCF) Sustaining Engineering Section has been renamed the Flight Simulation Projects Section. Humberto Davila heads the section.

The Requirements Management Section has been renamed the Information Services Section, and is headed by J. Mark Jernigan.

Volunteers staff federal retiree Service Center

A new Service Center to assist retirees from all federal agencies in their dealings with the Office of Personnel Management has opened in Bldg. 45, Rm. 143.

The center, operated by the National Association for Retired Federal Employees (NARFE), will help retirees, their families and survivors prepare claims or reports for the personnel office. NARFE volunteers staff and operate the center.

"In effect, the Service Center will act as the Personnel Office for the retirees," said NARFE Regional Vice President Burney Goodwin. "During their time as federal employees, the current retirees could go to their personnel office for answers to a myriad of problems. But after retirement, there's no personnel office to turn to. The center will attempt to fill that void and save many calls to federal agencies from retirees."

At first, the center will be open from 10 a.m. to 2 p.m. each Thursday, but its hours and days may be expanded if needed, Goodwin said. NARFE has more than half a million members nationwide, and the organization has been outspoken during the past 65 years in urging the updating and liberalizing of the government's civilian retirement systems.

For more information on the new Service Center, call x33091.

Space News Roundup

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