

Even NASA crews use laptops as part of mission

The first thing you notice about watching a space launch from the Kennedy Space Center at Cape Canaveral, Florida is that as soon as the huge Saturn rocket ignites, it blasts off the pad a lot faster than it appears on television.

The second thing you notice is the noise of the rockets. It's awesome. It hits you like a wave and is so loud that, I swear, the bones in my chest rattled for a good 30-seconds. Very cool.

On TV, the powerful cameras zoom in and follow the rocket as it climbs into the sky. It seems to take forever to disappear from view. In person, it doesn't "climb." That's too lame a word. It leaps into the clouds and is gone from the naked eye in just a couple of seconds. Really, as I watched the launch of Discovery from America's Space Port Thursday, I thought that it was like a bottle rocket. That's how fast it goes when you see it up close and personal.

Up close is about three miles away. That's as near as the NASA officials will let anyone be to the launch pad. Three miles is still in the official blast zone, which, we were told, means there's a bit of danger. It seems a powdery residue from the solid rocket booster exhaust is composed partially of hydrogen chloride. And, in combination from moisture, it can form droplets of hydrochloric acid.

Thus, under certain weather conditions and if the wind is just right, we journalists watching from the Complex 39 Press Site could have been covered with the stuff. We were told that we should be prepared to run into a nearby building or our vehicles if warned.

That, fortunately, didn't happen Thursday.

Instead, I was able to witness the launch of what NASA calls STS-96, a 10-day supply mission by the Space Shuttle Discovery to the still-under-assembly International Space Station some 250 miles above the earth. The reason I was there this week was to learn about the use of computers in space.

For in the 5,000 pounds of gear and material brought up to the International Space Station by the seven-member crew are a whole bunch of laptop PCs.

You'd think that the NASA space engineers would be implementing all sorts of sophisticated, powerful and very secret proprietary computer systems. Instead, I was surprised to learn, that they're taking up a bunch of IBM ThinkPads ... the same kind of PC's many of us lug back and forth from the office to the home. "Personal computers are now so powerful and sophisticated that it's easier and more cost-effective for us to do just what the consumer does, order them up from a PC vendor," says Andy Klausman, an engineer with United Space Alliance, the main contractor for the NASA Space Shuttle program. "I don't think the average PC user realizes how powerful today's machines really are."

The shuttle crew plans to leave five ThinkPads on the International Space Station for use next year by the crew that will eventually move in and constantly staff the orbiting extra-terrestrial base camp.

Aboard the Discovery shuttle vehicle right now, the crew is using nine ThinkPads. If you watch the TV coverage of the mission, you'll always see one of the laptops floating around in zero gravity. "Actually, to keep them from bumping into them, they often have Velcro them to the walls," IBM's James Sciales told me on my visit to the Kennedy Space Center.

Klausman, the engineer, has in his Houston office an IBM ThinkPad that served aboard the Russian Mir space station. When Mir had an accident a couple of years ago, the laptop was in the portion of the cargo bay that was seriously damaged. The bay was so damaged that there was a leak and the ThinkPad was exposed to a space vacuum. When it was eventually repaired, the laptop was retrieved and brought back to earth.

The only damage was the backlight for the screen, which popped in the vacuum. It was fixed and the laptop still works. I told the IBM folks they ought to copy the old Timex watch commercial: "Takes a licking and keeps on ticking."

The laptops in space have actually replaced the typical "clunk" mounted "rack" computers that we used to see on our spacecraft. The ThinkPads are

used by the crew for all sorts of functions, from managing command and control systems to sending e-mail back to their families on earth and NASA engineers in Houston.

In one of the more unusual applications, when the robotic space "arm" is extended from Discovery to do



some welding work on the International Space Shuttle, the exterior camera is plugged into a ThinkPad and the operation is monitored by the Shuttle crew inside Discovery on the laptop screen.

"These laptops just make everything more efficient," said Klausman. "They're all networked together and hooked up by the communications system to the NASA system back on earth. When the crew sleeps, the laptops are awake. They're as much a part of the mission as the radio and telemetry sys-

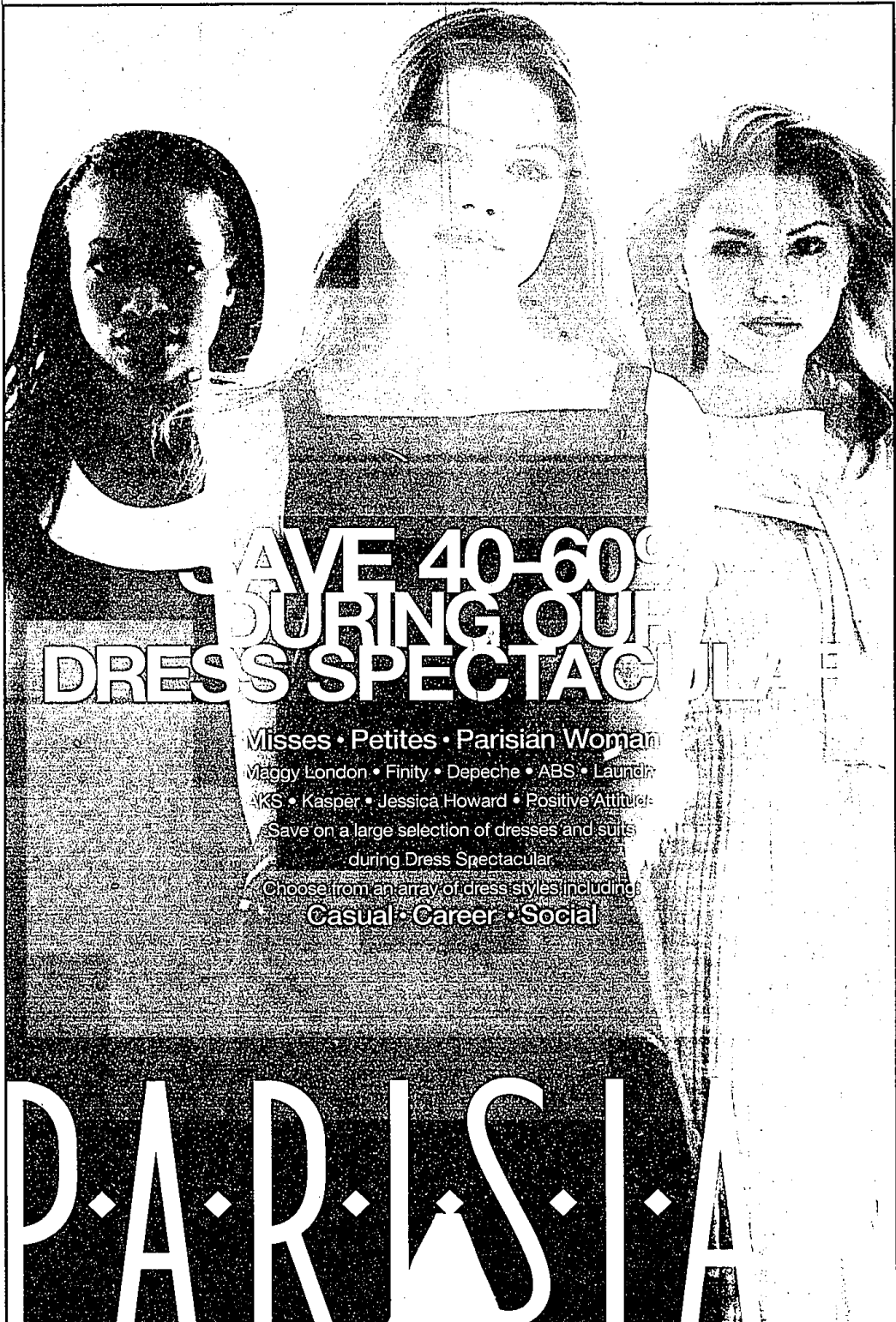
You'd think that the NASA space engineers would be implementing all sorts of sophisticated, powerful and very secret proprietary computer systems. Instead, I was surprised to learn, that they're taking up a bunch of IBM ThinkPads.

tems." If you want to learn more about the mission and see what is happening up there in space, visit the Kennedy Space center Web site at

<http://www.ksc.nasa.gov> And this weekend, I'll be talking about the use of computers in space on my PC Talk Radio Show on TalkRadio 1270, WXYT. Thanks to the people at a

company called AltITalk, you can now listen to my radio show on the Internet. Just visit www.pemiko.com for details. I tape-recorded the Thursday launch and you'll be able to hear that incredible blast off noise yourself.

Mike Wendland reports about computers and the Internet for NBC-television stations coast-to-coast. His radio show is heard every weekend on Talk Radio 1270, WXYT. You can reach Mike through his Web site at www.pemiko.com



SAVE 40-60% DURING OUR DRESS SPECTACULAR

Misses • Petites • Parisian Woman

Maggie London • Finity • Depeche • ABS • Laundry • KKS • Kasper • Jessica Howard • Positive Attitude

Save on a large selection of dresses and suits during Dress Spectacular

Choose from an array of dress styles including Casual • Career • Social

P.A.R.I.S.I.A

Sorry, we can't make price adjustments to previously purchased merchandise.

Call 1-800-424-8185 TO ORDER ANYTIME. SPECIAL STORE HOURS: Laurel Park Place open Sun. 12-6, Mon. 10-5, Tues.-Sat. 10-9. FOR INFORMATION call 953-7500. CHARGE IT! Parisian Credit Card, MasterCard, Visa, the American Express Card® or Discover®.

LOCATED AT LAUREL PARK PLACE IN LIVONIA, ON THE CORNER OF NEWBURGH ROAD AND SIX MILE ROAD (TAKE THE SIX MILE ROAD EXIT OFF INTERSTATE 275)...