New Airport X-Rays Scan Bodies, Not Just Bags

A Transportation Security Administration officer checks an x-ray security image in a demonstration Friday in Phoenix.

By PAUL GIBLIN and ERIC LIPTON
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Correction Appended

PHOENIX, Feb. 23 — X-ray vision has come to the airport checkpoint here, courtesy of federal aviation security officials who have installed a new device that peeks underneath passengers’ clothing to search for guns, bombs or liquid explosives.

The new body scanning machine, which went into use on Friday at Phoenix Sky Harbor International Airport and will be tested later at airports in Los Angeles and New York, will screen only volunteers, at least initially.

Transportation Security Administration officials want to make sure the machine is reliable and fast enough to replace the traditional pat-down — and that it does not provoke too many protests.

Security officials examining the head-to-toe images work in a closed booth, hidden from public view, agency officials said. Special “privacy” software intentionally blurs the image, creating an outline of a body that is clear enough to see a collarbone, belly button or weapon, but flattens details of revealing contours.

Kenneth Johnson, 64, of Mesa, was the first passenger screened on Friday in Phoenix. He said he had titanium implants in both shoulders and one knee that set off alarms at checkpoint metal detectors.

“I’ve been all over the world; I’ve been strip-searched,” Mr. Johnson, who was traveling to Florida, told an Associated Press reporter. “This was very easy.”

Others found the scans objectionable.

“I think that is a violation of people’s personal rights,” said Kara Neal, 36, a mental health counselor on her way to Philadelphia. She was not asked to undergo the screening, but said she would have refused. “I would rather take a pat-down than go through this,” she said.

Lawyers for the American Civil Liberties Union have raised similar objections, calling the X-ray scan a “virtual strip-search,” and have urged Congress to prohibit its use for routine screening.

The vending machine-size device, which costs about $110,000, will be used only when passengers are pulled aside for a more thorough check, known as secondary screening, after passing through a metal detector. Other scanning machines will be installed this year at Los Angeles International Airport and at John F. Kennedy International Airport in New York.
While security agency officials say the machines, known as SmartCheck, pose no health hazards, some experts disagree. The machine, manufactured by American Science and Engineering Inc. of Billerica, Mass., generates about as much radiation as a passenger would get flying for about two minutes at about 30,000 feet, or in technical terms, fewer than 10 microRöntgen per scan, according to security agency and company officials. The machine is already being used in some prisons, by United States customs and at Heathrow Airport in London. Dr. Albert J. Furnace Jr., an expert in molecular oncology at Georgetown University Medical Center, said such a low dose was inconsequential, even for pregnant women.

"Obviously, no radiation is even better than even a very low level," Dr. Furnace said. "But this is trivial."

But David J. Brenner, a professor of radiation oncology at Columbia University, said that even though the risk for any individual was extremely low, he would still avoid it.

"The question is, Do you want to add to your already existing risk?" Professor Brenner said, recommending that pregnant women and young children, in particular, avoid the device.

"There are other technologies around that can probably do the job just as well without the extra radiation."

The machine beams a low-energy X-ray at the passenger, which after it bounce off the surface of the skin is processed by computer software that highlights metals or elements like nitrogen that are found in explosives or weapons.

The X-ray is not strong enough to penetrate much beyond the skin, so it cannot find weapons that may be hidden in body cavities.

"A lot of people aren’t really comfortable with a pat-down," said Ellen Hoover, a security agency spokeswoman, "so they may find this to be an alternative they may appreciate." She added that the X-ray images would be destroyed immediately.

Aviation security officials are rushing to bring new screening devices to airports because of the London-based plot last summer to use liquid explosives to blow up airliners headed to the United States.

The devices now used at the nation’s airports, the X-ray machine for carry-on bags and the metal detector for passengers, rely on 1950s-era technology that cannot reliably detect liquid or plastic explosives.

Earlier efforts by the federal security agency to introduce more advanced checkpoint technologies have stumbled, including the so-called puffer machines, which blow air on passengers to search for minute traces of explosives.

After installing 94 of the machines at 37 airports, officials suspended the program last year, saying the devices broke down too often. More puffer machines may be bought if the problems can be resolved.

Officials intend to try other alternatives, like a so-called millimeter wave machine that uses harmless radio waves, instead of X-rays, to do a full body scan.

Ms. Howe said that until the tests on the SmartCheck were complete, it was unclear how widely the machines would be. "We are committed to testing it," she said. "But we are not committed to deploying it widely until we learn more."

**Correction: February 27, 2007**

A picture caption in some editions on Saturday with an article about a new screening device being tested at airports incorrectly described an X-ray image from the machine. The image of a woman showed what a scan from the device looked like before software was installed to hide body contours — not after the software was applied. (An X-ray on the front page did show a software-modified image of a man’s body.)