



# Film and Airport X-ray Machines

How to protect your precious pictures *Text & photos by Jack & Sue Drafa*

**W**ith heightened security at airports, it is becoming increasingly difficult trying to safely travel with your camera and film. Apart from personal safety, an important question is inevitably, “Will the airport x-ray machines damage my film?” There is no definitive answer because there are so many variables that can affect film in an x-ray machine, and security measures can be expected to become even more stringent in the future. We decided to do some investigative research in hopes we all might have a better understanding of the problem, and hopefully some solutions.

Film comes in speeds from ISO 25 up to ISO 3200 and each has a different spectral response. Some are more sensitive to ultraviolet, infrared or visible light, and x-rays are also a part of this electromagnetic spectrum.

On the x-ray side of the coin, there are a variety of machines at both check-in and the checked luggage section of the airport. In addition, newer and more advanced screening systems are constantly being developed. The effects of x-ray damage are cumulative,

but damage can occur immediately if the surveillance equipment is not operating properly.

The CTX-5000, manufactured by InVision Technologies, Inc., is used for checked baggage inspection at a number of airports globally. These machines use a technique called slicing, which looks at the items in your luggage at different angles, and creates a 3-D image of the bag’s contents. These beams are very powerful and can damage even low ISO films. Most airports using these machines now have signs warning you not to put film in your checked luggage.

When researching on the Web, we found personal responses that ranged from “I ran my film through dozens of times with no effect” to “I lost all my vacation pictures with one pass through the x-ray machine.” Taking your film through airport x-ray machines is like pulling a lever on a slot machine—you never know for sure whether you are going to win or lose.

In all our years of air travel, we have always hand checked our film at airports, so we have luckily avoided the film damage that other photographers cry about. We

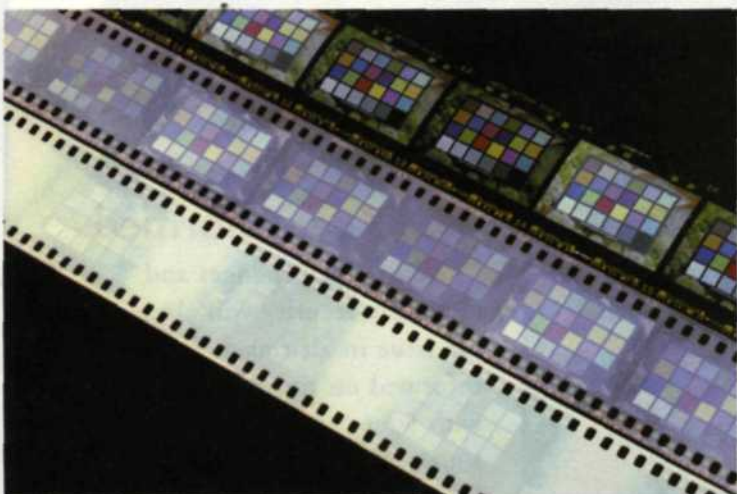
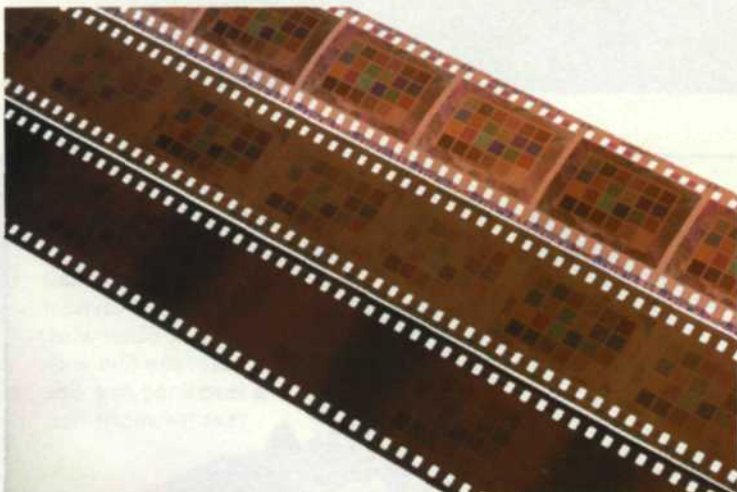
decided to run our own tests to see the magnitude of the problem. We exposed a dozen rolls of both color negative and slide film from ISO 50 to ISO 3200 and took them through four hand-check x-ray machines at various airports. Only the ISO 1600 and 3200 films had slight fogging damage after four x-ray exposures, and it was easily removed in printing.

We then decided to test these powerful CTX-5000 machines with another group of film ranging from ISO 50 to ISO 3200 packed in our checked luggage. Film speeds from ISO 800 up were badly fogged, while the lower speed films had less fogging as the film speed decreased. This test was enough to convince us that film should NEVER be packed in checked luggage.

So, what can you do if you plan on traveling with film through airports? Here's a list of tips we have gathered to help on your next trip to the airport.



**Above:** One method of preparing your film for hand checking is to put the rolls in clear plastic cans, and put the cans in a clear plastic bag.



**Top:** Three processed strips of color-negative film (from top to bottom, ISO 200, 800 and 1600) that were run through a CTX-5000 x-ray machine. Only the top roll is usable.

**Above:** The same three processed rolls in positive form, to show what the final images would look like.

## 1. Hand Check Your Film

When you arrive at the departure area, you will probably see a sign stating that the x-ray machine is safe for lower speed films. Do you really want to take a chance? We recommend hand checking all your film. Don't be surprised if they try to send your film through stating that the machine is safe. Politely, but persistently request a hand check of your film. In the United States, the FAA provides air travelers the right to a non x-ray inspection of film (FAA Reg 108.17 Part 108—Airplane Operator Security). International travel is a different story as hand checks are not always granted, which may require you to send your film through the machine.

Much of the stress related to hand checks can be reduced with a few simple tricks. Remove all the film rolls from their boxes. If they are in black cans, remove the film rolls and place them in clear cans or leave them loose. We always add a couple of high-speed rolls, so that we can honestly say we have high speed film for them to check. Several camera bag companies feature special film bags with clear viewing windows; otherwise place all the film in a clear zip-lock bag for transport.

Arrive early at the airport and allow an extra 30 minutes for hand checking your film through security. Be patient and be prepared to wait for a hand check if the security lines are long. Always smile, be helpful, courteous and friendly. Remember, the more you fight the system, the more it fights back.

When you ask for a hand check, often your camera bag will be sent on through the x-ray machine while your film is being analyzed. If they are at opposite ends of the x-ray area, your camera bag may be out of sight for quite some time and might magically disappear. If you have someone traveling with you, have them go ahead so they can keep an eye on your bag, while you deal with the hand check. If traveling alone, ask that the camera bag not be sent through until you are ready to go.

## 2. Protective Lead Shield

If you don't want to hassle with hand checks, you can use a special lead pouch to protect your film against x-ray machines. FilmShield, manufactured by Sima Products Corp., features several different size lead bags with various XPF (x-ray protection factor) ratings. Domke's FilmGuard bags come in two sizes, and OpTech offers its X-Ray Pouch.

Even though these lead bags are effective, we still suggest you carry your film as carry-on luggage. Pack your film in the clear bags for hand checking, but keep an x-ray bag handy. If you arrive to the airport late, or don't want to hassle with removing the film from your camera bag, then slip the whole assembly into one of the higher XPF bags and send it on through. When you place the lead bag in your camera bag, place it in a side pocket if possible. If you lay it flat on the top of the camera bag, it will block everything in the bag, and the x-ray technician will probably request a hand check of your camera bag.



Left: Lead-lined bags such as this FilmShield can protect your film.



Left: Here's a print of a negative from film that was x-rayed.



Below: Here's a print of a negative from film that was x-rayed but protected by a lead-lined bag.



Left: Airport x-ray machines can damage unprotected fast films. To be safe, have your film hand checked rather than x-rayed if possible; otherwise, protect the film with a lead-lined bag. See text for more tips.



Above: Here's a typical departure gate x-ray machine setup. Notice the chemical testing station at left. If you have film to hand check, select the machine next to the chemical station. That way, your camera bag will stay in sight during the hand check.

## 3. Keep Informed

Technology changes and obviously security will always be a big issue in air travel. Stay informed on tips for traveling with your camera and film. One source of information is called FSTOP, or Film Safety for Traveling On Planes. FSTOP is a film advocacy committee that addresses the problems of air travel and film. Check out the website at [www.f-stop.org](http://www.f-stop.org).

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