Demonstration Presentation Script ... by George J. Whalen

Client: Eltex, Inc.
For: PRINT show
Presenter: Jane Doe
Topic: Anti-Static Process Controls

[**Narrator: Jane Doe in business attire, on low platform, facing crowd in aisle.]**

Good afternoon! My name is Jane Doe. Welcome to the Eltex exhibit. Eltex designs and manufactures *anti-static solutions* and *electrostatic control technology* for better printing and bindery performance.

Today, we're first going to look at static electricity ... what it is and how it affects production ... then we'll look at new Eltex technology that not only tames static, but other printing and bindery problems of the different printing and converting processes. Then, we'll see how Eltex solutions benefit printers like you.

You've probably walked across a rug on a dry day... reached for a light switch... and had a spark jump to it from your fingers. Have you wondered what caused it? And I'm sure everyone here has been in a rainstorm, so lightning and thunder need no introduction. But, what *causes* lightning, anyway?

And, since we're all involved in printing, have you ever seen printed sheets cling stubbornly together in the pile? Or, watched bindery workers struggling to get pages to line-up?

Well, behind all these is *static electricity*. And, it's been frustrating printers since Gutenberg's era.

It took Ben Franklin -- an American printer -- to discover that lightning and static electricity were *one*. Today, we know that, as big storm clouds are driven by winds, their atoms rub against atoms of air molecules and lose electrons. That builds-up a gigantic static electricity charge on the cloud. It can reach a million volts, or more. When the voltage rises above the insulating limit of the air, a huge electrical spark -- *lightning* – jumps the gap and quickly discharges the cloud. Its energy is so high, it literally burns a "hole" in the atmosphere, creating a vacuum. Thunder is the sound of air molecules colliding, as they rush in to fill that hole.

To printers, understanding and controlling static electricity are now matters of real urgency. Press and bindery equipment speeds have *dramatically increased* in the last few years. Print substrates, such as paper and board, contain more and more insulating additives which smooth "run-ability." 'But, with high press speeds, it produces more static electricity. Static causes feeding problems in sheet-fed presses. It also causes delivery difficulties in web presses. An example is poor delivery of form-

and-cut 4-and-8-page products in heat-set publication presses. These are just a few of the static headaches printers now face.

Heat-set web printing brings abundant challenges to printers these days. For example, tension variations on a dry paper web can cause web-breaks – and we all know how bad *they* are! Having to shutdown, idle and re-web a press can cost a printer lost press time, disrupt press scheduling and sharply cut into profitability. Problems like this have attracted careful Eltex study ... and inspired some technology solutions we think you'll want to know about.

You see, Eltex is not only the world leader in static control for better printing and binding, but also a major supplier of electrostatic technology that overcomes undesired effects of the production processes. So, not only can we help you overcome static problems, we can also help solve offset, gravure, flexo, and screen printing problems in your manufacturing operations. Eltex offers wide-ranging solutions that give you greater control in your printing and binding, improve your productivity, and help to maximize your profitability. We'll say more about this in a few minutes.

But, here now is Mr. Herman Ecks, a static electricity expert with Eltex, to demonstrate some of fascinating effects of static electricity and how Eltex controls it in printing and binding.

[Herman enters, smiling. He takes position behind counter, holds up wooden-handled "HELLO!" sign and waves to the audience.]

To begin with, the word "static" means "standing still." So, static electricity is an electrical "charge" – positive or negative – that has accumulated on an object – but, it has no place to flow, because it is trapped on an *insulator!*

[He proceeds to simply demonstrate how static is generated in printing, first by friction and rubbing, then by separating. These must be quick, conclusive demonstrations that grab audience attention.]

Static charges happen when molecules of insulated objects rub together – or when objects which had been in contact are suddenly separated. Opposite static charges build-up because atoms on one lose electrons, while atoms on the other gain electrons. The more atoms are affected, the higher the voltage. (She describes what Herman is doing, if necessary.)

[Herman turns on the Van de Graaf generator in preparation for the next demo.]

Herman has started a machine called a "Van de Graaf generator" to produce static electricity for our next demonstration. Inside, it has a high-speed motor and a rotating friction belt that accumulates a

high static charge. This simulates the way a charge builds-up on a paper web, running through a printing press. How high is the static voltage now, Herman?

[Herman draws a spark from the machine to his forefinger. He winces and makes a "face," shakes his finger and holds up another sign that says "VERY HIGH"]

When heat set web drying is in use, it robs paper fibers of strength and resilience, weakening the web. It also promotes a very high static charge build-up on the web. A high static charge can exert a physical force, as this demonstration shows.

[Herman charges the pendulum and uses the stick to demonstrates "attraction" and "repulsion."]

It's generally known that objects with opposite charges attract one another ... objects with like charges repel each other. Herman puts a positive charge on the pendulum using our little static machine. Then, rubbing the polystyrene end of a two-sided rod with lambs' wool, he charges it negatively. The opposite polarity charges cause attraction between the pendulum and the rod. Next, he turns the rod to its PVC end and rubs it, charging it positively. Now, it's is like the charged pendulum's ... and the rod repels it! These attraction and repulsion forces of static electricity bring major production headaches in printing and the bindery.

[Herman charges a number of sheets and demonstrates attraction - repulsion between them.]

When sheets become charged with static electricity, they can cling together and disrupt feeding, as Herman is now demonstrating. Have you seen sheets clinging together like this on your press or in your bindery? It, and other problems caused by static electricity, have ready solutions in Eltex technology.

[Herman now brings an Eltex discharge rod near the charged sheets – they fall, as if by magic!]

Herman has just neutralized the static charge on those sheets by bringing an Eltex discharge bar into their vicinity. The Eltex bar emits a changing electrical field that literally "wipes-off" the charge on the sheets ... without touching them! As if by magic, the sheets stop clinging. Imagine what Eltex discharging technology could do to solve static electricity problems like this in your printing and binding! Herman...does it really work?

[Herman smiles and holds up a wooden handled sign "Yes – It works every time!" He flips it around and the back says: "THANK YOU!" ... and, he exits.]

Thanks for those remarkable demonstrations, Herman.

[Full audience attention is now on the narrator.]

As you can see, Eltex has effective product solutions that control static electricity and significantly improve performance on press and in the bindery. Now, I'd like to introduce you to the "other side" of our business: electrostatic control . Many Eltex products in this category are designed to counteract undesirable side-effects of heat set web-offset and gravure processes. They enable the web to run faster, with fewer web-breaks and better register, along with a significant improvement in quality.

[She indicates the various products]

For example:

Eltex has a Chill Tacking System that attracts the web to the cooling cylinder and breaks-up the boundary layer of air that otherwise would cause the web to "float" on the chill rolls. It gives better control of web tension and it eliminates solvent condensation at the chill roll.

Eltex also has developed an Electrostatic Remoistener that replaces lost-moisture in the web, reducing or eliminating the "fluting effect" and making the paper more flexible. The result is faster production, better quality and less waste.

[She returns to center]

What we have found to be the most significant benefit of this Eltex technology is an overall improvement of about **20-percent in bindery production** ... plus, the capability to mix products from sheetfed, rotogravure and cold-set production, with products from heat-set web-offset production ... without the heat-set section "growing" due to moisture absorption.

Let's now take a look at how Eltex technology remoisturizes the heat-set web.

[She Indicates the Eltex LG50 Web Remoistener]

"Web shrinkage" happens in a dryer because water has a lower-boiling-point than solvents. When a high-speed web enters a high-temperature-dryer, moisture in the paper fibers is immediately driven out. This shrinks the web's physical dimensions and makes it bone-dry. As I mentioned earlier, removing moisture from the paper web both weakens it and increases the charge that can build up on the web. So, discharging the web and normalizing the paper's moisture content benefits production four ways.

First, it *restores* the paper's strength. Second, it *reduces or eliminates* unsightly fluting. Third, it can *prevent* heat-set-printed sheets from "growing" in the pile. This phenomenon usually happens after a

book has been trimmed --when printed sheets from a very dry web absorb moisture from the surrounding air and actually increase in size! And, fourth, it prevents paper fiber-baking in the folder.

Discharging a web is readily done with an Eltex discharge unit, as Herman's earlier demonstration showed. But remoistening a dry web is another challenge. You see, there's an "air flow" moving along just above the surface of the speeding web. It acts like a barrier. Water mist sprayed toward the web surface simply bounces off that air stream. We need to *penetrate* this barrier and get the right amount of moisture into the web, where it can be absorbed. Here's the Eltex solution.

The Eltex LG50 Web Remoistener uses electrostatic attraction to "draw" finely-atomized water molecules <u>through</u> the speeding air flow and into the web. So, a consistent moisture level reaches and penetrates into the paper, restoring moisture-content of the fibers. Remoistening strengthens the web and enables it to run smoothly at tension, free of "fluting." This means no fiber lifting, no fiber breaking, and thus, a substantial reduction in web-breaks. So, the Eltex LG50 improves productivity and profitability ... and it ensures against web-breaks in heat set production.

Next, let's look at the Eltex Chill Tack System.

[She indicates the Chill Tack display]

We're all familiar with Chill Rolls. They follow the dryer on a heat set web and their job is to extract heat from the web passing over them. The better the contact between the web and rolls, the more efficient the heat transfer and the higher the gloss of the finished, printed areas. Today, the extra heat energy put into a high-speed web by a higher-temperature dryer needs to be extracted much faster by the chill rolls. The web has to be cooled before it enters the folder, to harden ink so it can't smear it on the rollers.

The Eltex Chill Tack System breaks up the boundary layer of air between the web and the surface of the chill rolls. Then, it induces an exact electrostatic charge on the paper, so the web is *attracted* to the chill rolls. This attraction overcomes the tendency of the web to "float" on the airflow over the chill rolls. It promotes very intimate contact, much better heat transfer and greatly improved cooling of the web, free of condensation.

Eltex Chill Tack allows higher web operating speeds. And, it increases web-cooling efficiency. So, you need fewer chill rolls to extract heat from the web. You spend less, which lower costs. Meanwhile, production increases and profitability is improved. It all adds-up to a powerful reason to have Eltex Chill Tack on your heat set web press!

[She indicates Eltex Cross Tack]

Now, let's look at Eltex Cross Tack. It's the quick and easy way to keep work-in-process flowing smoothly on your plant floor -- instead of spilling all over it!

When folded, printed products -- magazines and catalogs for example -- are stacked for transfer, it's possible for the stack to slip and spill over, causing spoilage and waste. You need a way to hold the products together, while the stack is being moved from the stacker to the pallet.

Eltex Cross Tack is almost a magic solution! It makes the stack into a "block of products" by inducing electrostatic charges onto the products, vertically and horizontally. So, the products strongly attract one another. In fact, they cling together so tightly, you can turn the stack 90 degrees with no slippage at all! You can then transport it with confidence. With Eltex Cross Tack, there's nothing physically touching your products -- except other products! So, there's nothing to mar, rip, tear or cut into them. The invisible electrostatic charges hold the products together and discharge over time. So, every product comes out in perfect condition, ready for the next step.

Lastly, a brief word about an Eltex electrostatic control innovation for *gravure* printing.

[She indicates Electrostatic Assist]

Eltex Electrostatic Assist is designed to guarantee the print-quality of gravure presses by assuring that the smallest dots will print -- even at the highest press speeds! There isn't a lot of ink in a small gravure dot ... and at high press speeds ... ink may fail to transfer from the gravure cylinder to the substrate. To overcome this, Eltex Electrostatic Assist first discharges the web to rid it of random static charges. It charges the impression cylinder (and the ink within the gravure cylinder cells) to the opposite polarity. Opposites attract, so the web is kept in intimate contact with the gravure cylinder -- while the ink from cells of all sizes is attracted right to the paper! The result is superb color rendition, down to the finest-dot detail! Worldwide, Eltex has equipped more than 4,000 gravure printing units with ESA.

[She prepares to close]

We've only touched on a few Eltex anti-static and electrostatic control solutions in today's presentation. But, I hope we've helped you see how your printing and bindery operations can be much more profitable and productive when equipped with Eltex technology.

Eltex has been serving the market since 1953 and has just established a U.S. subsidiary here, in Huntersville, North Carolina. Members of our friendly U.S. and European technical staff are here with us today. They're ready to answer your questions and suggest ways we can be of help to you. Please come up and say "hello." And be sure to let us take your address information at the reception desk, so

we can update you on fascinating new developments in printing technology that Eltex has in store for you.

Now, I'd like to thank you for being with us today and for hearing what Eltex is doing to make heat set web offset printing and bindery more efficient, productive and profitable. Next time you see a flash of lightning, we hope it will remind you of Eltex -- the leader in electrostatic technology – and of the time we've shared today.

On behalf of everyone at Eltex, have a wonderful day!