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Business Responds to AIDS . . . is a program the Centers for Disease Control is launching today, World AIDS Day, to help educate businesses on how to deal with the growing problem of AIDS. The CDC says two-thirds of corporations have no AIDS policy. (World AIDS Day, 1A.)

Help-wanted advertising . . . volume rose slightly in October but not enough to indicate a big pickup in business-hiring plans, the Conference Board says. The Conference Board measures advertising volume at 51 major newspapers across the USA.

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Money

TUESDAY, DECEMBER 1, 1992

U.S. companies push for perfection

By John Hillkrk
USA TODAY

A handful of U.S. companies are closing in on an unimaginable goal: Making products that have almost zero defects.

Motorola is now making several complicated products, including pagers and cellular telephones, that are 99.99966% defect-free. They contain less than 3.4 defects per million parts produced.

In statistical terms, that's known as the "six sigma" level of quality, and extremely few firms — including Japanese companies — are even close.

An amazing feat, true. But Motorola isn't stopping. Its new target, to be reached within six years, is 2.4 defects

per billion parts. "A lot of people say this is an insane level of improvement," says Mikel Harry, director of Motorola's Six Sigma Research Institute.

Others hitting top-quality standards:

► Eastman Kodak, the color film giant, has surpassed six-sigma quality in a couple of key product lines: Kodacolor film contains less than 1 defect per million parts produced.

► Catalog company L.L. Bean last spring shipped 500,000 packages without an error. But the company's error-free rate — 99.92% — still lags its manufacturing counterparts.

The typical U.S. product or service contains about 6,210 defects per million

The IRS's tax advice telephone hot line has 140,000 errors per 1 million calls.

Why should companies aim so high?

► It saves money. Since 1987, Motorola's quality-improvement crusade has saved the company nearly \$2.4 billion. That money would have been spent on factory rework, warranty repairs and inventory. Says Harry, "We're laughing all the way to the bank."

► Products are getting too complicated. Today's state-of-the-art computer memory chip contains 16 million microscopic transistors. Within 10 years, a chip will contain 1 billion devices. At that point, a single defect on a chip with a billion parts would ruin it.

35mm film negative is made up of an almost infinite number of photographic elements. Eliminating every possible defect is a goal at Kodak as well as Japanese filmmakers Fuji and Konishiroku, maker of Konica film.

With Motorola's help, several firms are striding toward similar improvements: IBM and Texas Instruments' Defense Systems and Electronics Group plan to achieve six-sigma quality throughout their product lines by 1994; Digital Equipment, six sigma by 1995.

"Several years ago, we didn't like to share anything," says Mike Cooney, quality chief at TI's defense/electronics arm. "But if we share, we're all going to