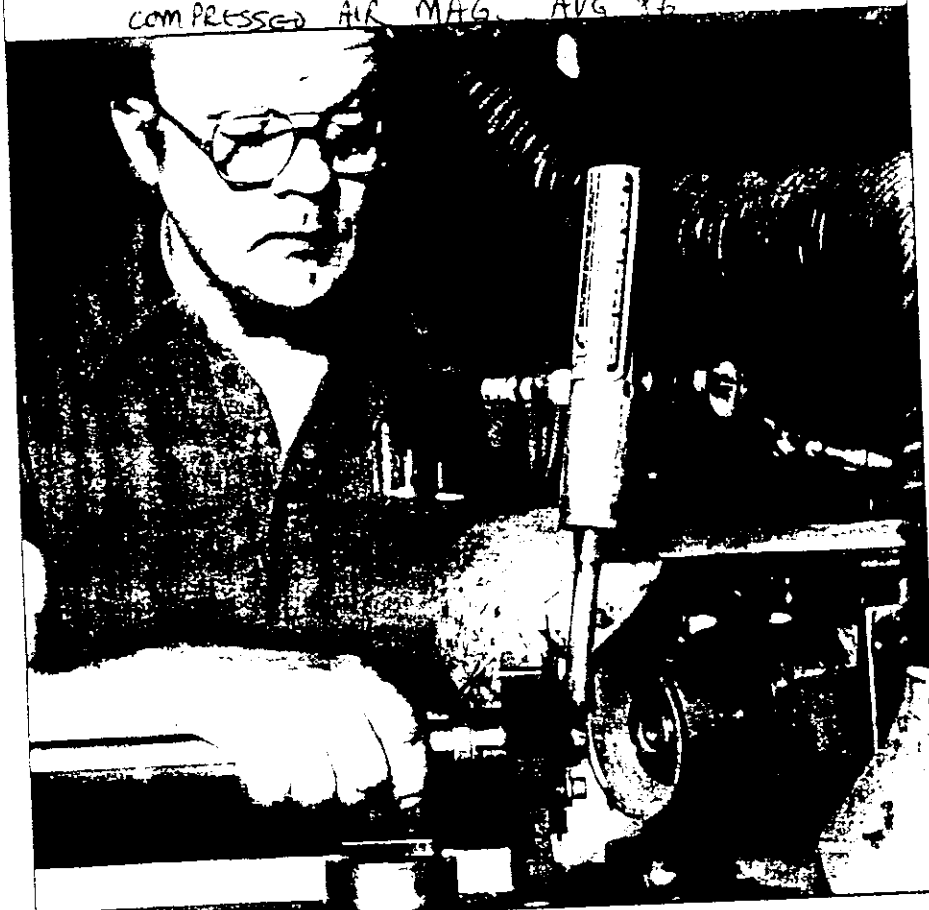


COLD AIR COOLANT
COMPRESSED AIR MAG. AVG 83



Cold (10° F) air directed onto the point of grind has eliminated microscopic heat cracks produced during grinding at Dana Corporation's Spicer Transmission Group. Dana uses 2-flute Starcut bits in a vertical Phillips gun drill to machine idler holes in cast-iron transmission cases. The bits had to be ground three to five times a day. The resulting expense, coupled with spontaneous breakage of as many as six solid carbide heads per month (at a cost of \$350 each), resulted in a close examination of the drill grinding. Using a microscope, technicians found fine hairline cracks on three angles. Each pass with the diamond wheel is just 0.001 inch deep, but it was generating the tremendous heat needed to create the cracks, which led to

the breakdowns. Dana wanted to avoid conventional liquid coolants because the grinding machines were not equipped to handle the fluid. Cooling with a jet of shop air was impractical because of the high cost and minimal effectiveness of room-temperature air. Instead, the manufacturing group installed Vortec Cold Air Guns. They produce the cold air from shop air, then direct it onto the point of grind through a short piece of plastic tube. The Cold Air Gun has a magnetic base, allowing it to be positioned wherever convenient for the operator. Each Vortec instrument costs \$272; prior to their implementation, Dana was losing up to \$2000 per month in gun drills that broke prematurely.

Circle no. 101