

Printing Machine Operators

(0*NET 51-5023.01, 51-5023.02, 51-5023.03, 51-5023.04, 51-5023.05, 51-5023.06, 51-5023.07, 51-5023.08, 51-5023.09)

Significant Points

- Most are trained informally on the job.
- Employment growth will be slowed by the increasing use of new, more efficient computerized printing presses that will facilitate movement towards printing-on-demand.
- Opportunities should be best for persons who qualify for formal apprenticeship training or who complete postsecondary training programs in printing.

Nature of the Work

Printing machine operators prepare, operate, and maintain the printing presses in a pressroom. Duties of printing machine operators vary according to the type of press they operate—offset lithography, gravure, flexography, screen printing, letterpress, and digital. Offset lithography, which transfers an inked impression from a rubber-covered cylinder to paper or other material, is the dominant printing process. With gravure, the recesses on an etched plate or cylinder are inked and pressed to paper. Flexography is a form of rotary printing in which ink is applied to a surface by a flexible rubber printing plate with a raised image area. Use of gravure and flexography should increase over the next decade, but letterpress, in which an inked, raised surface is pressed against paper, remains in existence only as specialty printing. In addition to the major printing processes, plateless or nonimpact processes are coming into general use. Plateless processes—including digital, electrostatic, and ink-jet printing—are used for copying, duplicating, and document and specialty printing, usually by quick and in-house printing shops, and increasingly by commercial printers for short-run jobs and variable data printing.

To prepare presses for printing, machine operators install and adjust the printing plate, adjust pressure, ink the presses, load paper, and adjust the press to the paper size. Press operators ensure that paper and ink meet specifications, and adjust margins and the flow of ink to the inking rollers accordingly. They then feed paper through the press cylinders and adjust feed and tension controls.

While printing presses are running, press operators monitor their operation and keep the paper feeders well stocked. They make adjustments to correct uneven ink distribution, speed, and temperatures in the drying chamber, if the press has one. If paper jams or tears and the press stops, which can happen with some offset presses, operators quickly correct the problem to minimize downtime. Similarly, operators working with other high-speed presses constantly look for problems, making quick corrections to avoid expensive losses of paper and ink. Throughout the run, operators may occasionally pull sheets to check for any printing imperfections, though much of this checking for quality is now being done by computers.

In most shops, press operators also perform preventive maintenance. They oil and clean the presses and make minor repairs.

Machine operators' jobs differ from one shop to another because of differences in the kinds and sizes of presses. Small commercial shops are operated by one person and tend to have relatively small presses, which print only one or two colors at a time. Operators who work with large presses have assistants and helpers. Large newspaper, magazine, and book printers use giant "in-line web" presses that require a crew of several press operators and press as-

sistants. These presses are fed paper in big rolls, called "webs," up to 50 inches or more in width. Presses print the paper on both sides; trim, assemble, score, and fold the pages; and count the finished sections as they come off the press.

Most plants have or will soon have installed printing presses with computers and sophisticated instruments to control press operations, making it possible to set up for jobs in less time. Computers allow press operators to perform many of their tasks electronically. With this equipment, press operators monitor the printing process on a control panel or computer monitor, which allows them to adjust the press electronically.

Working Conditions

Operating a press can be physically and mentally demanding, and sometimes tedious. Printing machine operators are on their feet most of the time. Often, operators work under pressure to meet deadlines. Most printing presses are capable of high printing speeds, and adjustments must be made quickly to avoid waste. Pressrooms are noisy, and workers in certain areas wear ear protectors. Working with press machinery can be hazardous, but accidents can be avoided when press operators follow safe work practices. The threat of accidents has decreased with newer computerized presses because operators make most adjustments from a control panel. Many press operators, particularly those who work for newspapers, work week-ends, nights, and holidays. They also may work overtime to meet deadlines.

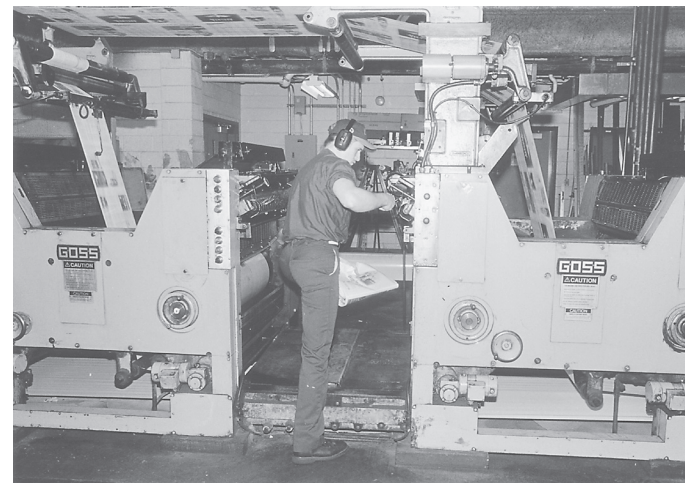
Employment

Printing machine operators held about 199,000 jobs in 2002. Nearly one-half of operator jobs were in the printing industry, but newspaper publishers and paper product manufacturers also were large employers, having each about 10 percent of all printing machine operator jobs. Additional jobs were in the "in-plant" section of organizations and businesses that do their own printing—such as banks, insurance companies, government agencies, and universities.

The printing and newspaper publishing industries are two of the most geographically dispersed in the United States, and press operators can find jobs throughout the country. However, jobs are concentrated in large printing centers such as Dallas, Chicago, Los Angeles, New York, Philadelphia, and Washington, DC.

Training, Other Qualifications, and Advancement

Although completion of a formal apprenticeship or a postsecondary program in printing equipment operation continues to be the best



Operating newer printing presses requires some computer skills and continual retraining.

way to learn the trade, most printing machine operators are trained informally on the job while they work as assistants or helpers to experienced operators. Beginning press operators load, unload, and clean presses. With time, they move up to operating one-color sheet-fed presses and eventually advance to multicolor presses. Operators are likely to gain experience on many kinds of printing presses during the course of their career.

Apprenticeships for press operators in commercial shops take 4 years. In addition to on-the-job instruction, apprenticeships include related classroom or correspondence school courses. Once the dominant method for preparing for this occupation, apprenticeships are becoming less prevalent.

In contrast, formal postsecondary programs in printing equipment operation offered by technical and trade schools and community colleges are growing in importance. Some postsecondary school programs require 2 years of study and award an associate degree, but most programs can be completed in 1 year or less. Postsecondary courses in printing are increasingly important because they provide the theoretical knowledge needed to operate advanced equipment.

Persons who wish to become printing machine operators need mechanical aptitude to make press adjustments and repairs. Oral and writing skills also are required. Operators should possess the mathematical skills necessary to compute percentages, weights, and measures, and to calculate the amount of ink and paper needed to do a job. Because of technical developments in the printing industry, courses in chemistry, electronics, color theory, and physics are helpful.

Technological changes have had a tremendous effect on the skills needed by printing machine operators. New presses now require operators to possess basic computer skills. Even experienced operators periodically receive retraining and skill updating. For example, printing plants that change from sheet-fed offset presses to digital presses have to retrain the entire press crew because skill requirements for the two types of presses are different.

Printing machine operators may advance in pay and responsibility by working on a more complex printing press. Through experience and demonstrated ability, for example, a one-color sheet-fed press operator may become a four-color sheet-fed press operator. Others may advance to pressroom supervisor and become responsible for an entire press crew. Their understanding of the prepress requirements needed to run a press smoothly allows some operators with several years of experience to transfer to jobs as prepress technicians.

Job Outlook

Employment of printing machine operators is expected to grow more slowly than the average through 2012. Despite the slow growth, looming retirements of printing machine operators and the need for workers trained on increasingly computerized printing equipment will create many job openings over the next decade. Opportunities to become printing machine operators are likely to be favorable for persons who qualify for formal apprenticeship training or who complete postsecondary training programs in printing.

The demand for, and the output of, printed materials is expected to grow over the 2002-12 period. Demand for books and magazines will increase as school enrollments rise, and as substantial growth in the middle-aged and older population spurs adult education and leisure reading. Additional growth should stem from increased foreign demand for domestic trade publications, professional and scientific works, and mass-market books such as paperbacks. Demand for commercial printing also will be driven by increased expenditures for print advertising materials. New market research techniques are leading advertisers to increase spending on messages targeted to specific audiences, and should continue to require the printing of a wide variety of newspaper inserts, catalogs, direct mail

enclosures, and other kinds of print advertising. Other printing, such as newspapers, books, and greeting cards, also will continue to provide jobs.

Employment, however, will not grow in line with output because of the increased use of new computerized printing equipment. Also, new business practices within the publishing industry, such as printing-on-demand and electronic publishing, will cut into the production of printed materials. Printing-on-demand refers to the printing of materials as they are requested by customers, in contrast to printing thousands of publications prior to purchase, many of which are subsequently discarded. There are also expected to be fewer newspaper printing jobs as a result of mergers and consolidation within the industry.

Earnings

Median hourly earnings of printing machine operators were \$ 13.95 in 2002. The middle 50 percent earned between \$10.52 and \$18.27 an hour. The lowest 10 percent earned less than \$8.32, and the highest 10 percent earned more than \$22.46 an hour. Median hourly earnings in the industries employing the largest numbers of printing machine operators in 2002 were:

Newspapers, periodicals, book, and directory publishers	\$16.09
Commercial printing	15.02
Converted paper products	14.95
Plastic products	13.21
Business support services	10.60

The basic wage rate for a printing machine operator depends on the type of press being run and the geographic area in which the work is located. Workers covered by union contracts usually have higher earnings.

Related Occupations

Other workers who set up and operate production machinery include machine setters, operators, and tenders—metal and plastic; bookbinders and bindery workers; and various precision machine operators.

Sources of Additional Information

Details about apprenticeships and other training opportunities may be obtained from local employers, such as newspapers and printing shops, local offices of the Graphic Communications International Union, local affiliates of Printing Industries of America, or local offices of the State employment service.

For general information about press operators, write to:

► Graphic Communications International Union, 1900 L St. NW., Washington, DC 20036. Internet: <http://www.gciu.org>

For information on careers and training in printing and the graphic arts, write to:

► Printing Industries of America, 100 Daingerfield Rd., Alexandria, VA 22314. Internet:

http://www.gain.org/servlet/gateway/PIA_GATF/non_index.html

► Graphic Communications Council, 1899 Preston White Dr., Reston, VA 20191. Internet: <http://www.teched.vt.edu/gcc>

► Graphic Arts Technical Foundation, 200 Deer Run Rd., Sewickley, PA 15143. Internet: <http://www.gatf.org>