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OCCUPATIONS

in the

FILM PROCESSING

and

FINISHING INDUSTRY



State of New Jersey
Department of Labor and Industry
OFFICE OF MANPOWER
NEW JERSEY STATE EMPLOYMENT SERVICE
Affiliated with United States Training and Employment Service

New Jersey State Library

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NEW JERSEY OCCUPATIONAL RESEARCH CENTER
New Jersey State Employment Service
Bloomfield, New Jersey

SPECIAL NOTICE

The occupational descriptions contained in this volume have been compiled from a number of different sources and therefore describe the individual occupations in a generalized composite form. Consequently, no description can be expected to coincide exactly with any specific job in a particular establishment or in a particular locality. To be of greatest usefulness, the descriptions should be supplemented by local information concerning the specific jobs in the community.

The U. S. Employment Service has no responsibility for the settling of jurisdictional matters or the setting of wages and hours. In the preparation of occupational descriptions, no facts concerning such matters were collected. It should be clearly understood, therefore, that because of their nature, occupational descriptions published by the U. S. Employment Service cannot be considered standards for the determination of wages, hours, or jurisdictional matters.

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LIST OF ILLUSTRATIONS

Illustrations are published through the courtesy of the following companies: Allied Processing Corporation, Newark, New Jersey; Berkey Photo Service, New York, New York; Combo Photo Labs, Paterson, New Jersey; Eastman Kodak Company, Rochester, New York; National Color Laboratories, Roselle, New Jersey; Pako Corporation, Minneapolis, Minnesota; and Perfect Film and Chemical Company, Philadelphia, Pennsylvania

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Grateful acknowledgment is extended to the following companies which were visited and supplied information that proved invaluable in the preparation of this brochure:

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FOREWORD

The preparation of this brochure is an outgrowth of the expressed need for basic job information in the field of photographic processing and finishing. Requests were made by several large firms in the industry to the United States Employment Service and affiliated State Employment Services for the conduct of job studies because of problems in selecting, classifying, and training personnel, as well as excessive turnover.

Discussions with employers and the perusal of trade journals and other source materials gave credence to the assertion that lack of manpower is the most pressing problem with which employers are faced. Not only is it of immediate concern, it is portrayed as the key to expansion of firms and consequent growth of the industry.

The impact of this industry on the nation's economy can be expressed in terms of some 10,300 plants, 150,000 workers, and company earnings in excess of \$2,300,000,000. in 1965, and an increase of approximately 14% over this figure in 1966. Employers anticipate continued expansion and improvement which will require continued emphasis on recruitment and training of workers.

Many people in the job market, particularly young entrants, encounter employment problems because of lack of education and job skills, coupled with unrealistic hiring requirements. Good personnel practices dictate utilization of workers in employment accordant with their capacities and motivation. Consistent with these premises is the existence of entry and other jobs in the photo processing industry for which educational attainment does not preclude employment or subsequent promotion.

Information in this brochure will, therefore, be useful to the State Employment Services in their counseling and placement activities, and to those in schools, industry and other organizations concerned with recruitment, training, counseling and other aspects of manpower utilization.

INTRODUCTION

From Aristotle's description of an image produced by the sun's rays in a darkroom, to photographs of the moon's surface, man has continually observed the reflective image of light. Throughout the centuries he has ventured to reproduce this image while using progressively improved processes, techniques, and equipment.

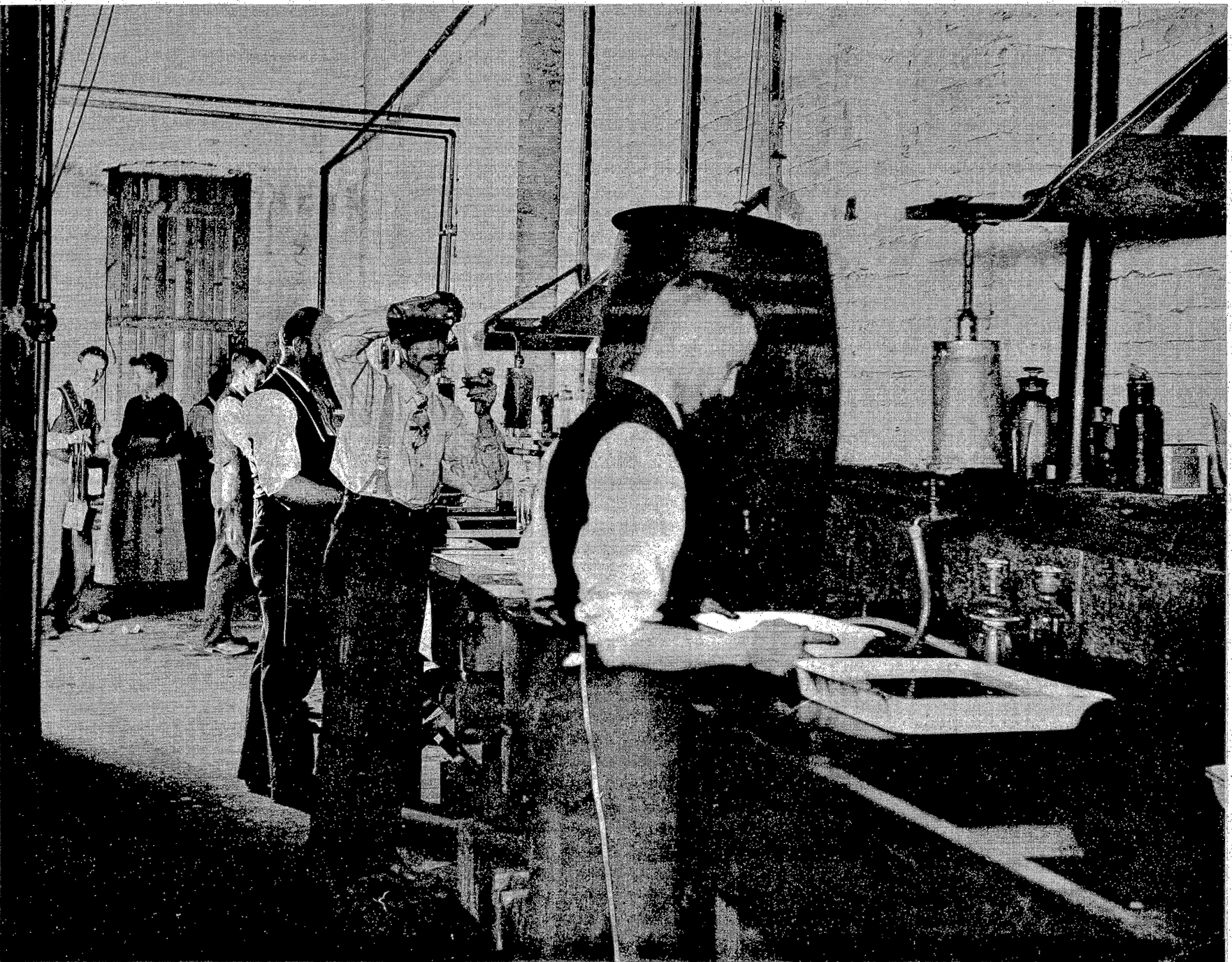
Our modern society now utilizes photographic technology in industrial firms, educational institutions, scientific research, communications, motion pictures, portrait studios, and general picture taking. Photographs have become a captivating force within our economic structure. While historically suspending time, halting motion, and depicting details of our existence, photography has given rise to the photographic processing and finishing industry.

Historical Background

Early Greek philosophers were aware of an inverted image produced by reflective sun's rays. But the principle remained undeveloped until the 16th century, when Giovanni Battista della Porta and Daniello Barbaro wrote their theories on the camera. Later, such men as Nicéphore Niépce, Jacques Louis Marie Daguerre, and Fox Talbot contributed to the development of various processing techniques which led to the invention of the wet collodion process by Frederick Scott Archer. This process consisted of a glass plate coated with potassium iodide and potassium bromide. The plate was then sensitized in silver nitrate, placed in a holder, positioned in the camera, and exposed to light. The exposure was developed in ferrous sulfate, dipped in potassium cyanide, washed and dried. From 1856 to 1887 numerous innovations were made to this process. Among them were tintype (metal plate instead of glass), combination printing, retouching of negatives, and the gelatin dry plate.

The dry plate was one of the most important developments of the 19th century. It could be prepared and put aside for later use, thus eliminating the need for a photographer to be somewhat of a chemist. George Eastman was an early manufacturer of the dry plate and through continuous research perfected the first commercial transparent roll film.

In 1888 Eastman invented a simple, light, portable box camera, in direct contrast to bulky cameras then on the market which required a tripod for support. The box camera, which was called the No. 1 Kodak Camera, was loaded with roll film adequate for 100 exposures. Upon total exposure the entire camera was returned to Rochester, New York, where the film was developed and printed and the camera reloaded with film for return to the customer. This marked the beginning of modern photo processing.



Early Processing of Film

By 1896 more than 100,000 Kodak cameras had been sold, indicating a keen interest by the public in photography. Amateur photographers were taking pictures of objects, people, and places of interest encountered in everyday life. They formed the nucleus of customers for growing photo processing plants.

With the advent of the simplified camera introduced by Eastman, the new industry continued to expand to meet the needs of a growing market.

By 1923 many drugstores became "drops" where amateur photographers left film and picked up finished prints in a few days. Enterprising individuals converted basements and attics of private homes into darkrooms. Wooden trays with oilcloth or rubber sheeting, enamel or stainless steel trays, and printing boxes and enlargers were either built or purchased reasonably. Developer powders and acid-fixing baths were bought from photo supply houses. Family members became involved as the volume of work increased, and by 1927 many photo processing firms were established throughout the country.

Interest in amateur photography was stimulated and new equipment and processing methods evolved, created by the introduction of home movies in 1923, color photography in 1935, and slides in 1942.

Subsequent to 1954, other companies were permitted to process color film which had been perfected and processed exclusively by the Eastman Kodak Company. Machines and techniques for processing color prints were made available, opening a new field to photo processing establishments.

In the year 1964 alone, fifty-two million amateur photographers took 2½ billion pictures. The effect of such enormous rate of growth led certain companies in the industry to make foreign investments, to diversify their holdings, and to seek further capitalization by offering stock to the public.

Nature of the Industry

The diversity of film types and sizes, and the cost and complexity of machinery required for processing and finishing, are compelling factors governing the organizational structure of firms in the industry and the types of services provided. Firms may range in size from one-man operations in makeshift quarters, offering one type of service only and processing up to 3,000 rolls of film per month, to large companies which embrace a complex of establishments and utilize the latest machinery and techniques to provide an array of services for processing more than 150,000 rolls of film monthly.

Basically, the photo processing industry involves three categories of services, generally referred to as film processing, photofinishing, and custom photofinishing. Film processing refers to the preparation of movies and transparencies (slides) for use in

movie and slide projectors. Photofinishing concerns the preparation of film and the development of negatives to produce prints. Custom photofinishing refers to services provided essentially for the professional photographer, including individual testing of negatives, preparation of proofs and prints, and coloring and retouching of negatives and prints. It must be emphasized, however, that the categories are devised for grouping of specific services. There is no rigid division of establishments within each category, and overlapping of services may exist according to the organizational structure of the firm.

To service a broader segment of the trade and cope with the competitive nature of the industry, companies frequently merge with, or acquire, other operations to provide a wider range of services to customers. Small companies sometimes combine operations under one roof to reduce operating and purchasing costs and to improve quality. Laboratories processing only black and white film may merge with those offering color services. However, some laboratories find it profitable to specialize in processing either black and white or color film, depending on the needs of the trade in a particular geographic area. Often, laboratories will accept and farm out work to outside contractors. Large companies may acquire other firms to provide customers with expanded services for processing or finishing of slides, movies, prints, school and wedding pictures, and portrait work. Much of the work of larger organizations can be accomplished at plants located physically apart from each other. In addition to providing services, most firms also retail photographic equipment and supplies.

Selection of a laboratory of "drop" location by amateurs is generally governed by one of the following: type of service required; speed of service; cost; inducements, such as free film and coupons; eye-catching containers; or convenience of mailing. Most of the amateur work for laboratories is picked up and delivered by routemen at such locations as drug stores, photo dealers, department stores, and supermarkets. Another type of selection, the mail order business, has increased considerably in the past five years through newspaper and magazine promotion.

Professional photographers frequently utilize mail service to fill their specialized needs. As an example, the professional may use various laboratories for portrait work, wedding and prom pictures, and display work. In large cities, the professional may deliver work personally or have it delivered to a nearby laboratory.

BASIC PROCESSING FUNCTIONS

Basic processing systems for the preparation of film and prints have been developed by manufacturers of equipment and supplies, complete with manuals and training programs, to provide consistent day to day results. Deviations exist in effective processing procedures, however, because of size and location of plants, type of machinery used, and type and volume of orders. To illustrate the basic functions involved in the preparation of various photographic products, three process flow charts, representing the three categories of services (film processing, photofinishing, and custom photofinishing) are presented on pages 16, 17 and 18. The following narrative describes in brief those functions which are most common to the industry (refer to the specific job description for detailed information).

Receiving-Sorting

Cartons containing order envelopes are emptied on tables, sorted according to color film or black and white, and placed in appropriate bins. Orders are fingered to determine contents, and sorted according to roll film for developing or flat film indicating reorders.

Numbering

Since it is essential that customers receive the correct film, envelopes and film must be identified. A common form of identification is the twincheck method. Twinchecks, which are perforated and gummed for separation and application, are dispensed from machines and affixed to corresponding envelopes and film to permit regrouping after processing. A route card is made up for each batch of orders and follows the batch through the entire process.

Racking-Loading

The rolls of film with seals broken and twincheck numbers attached, are spring-clipped to racks or hangers in groups of 7 or 10. The racks are then loaded in tote or rack boxes, and routed to the appropriate darkroom. The matching batch of envelopes which formerly contained black and white film is clipped to the top of the rack box; others which formerly held color film are routed to the take-down area. Movie and slide film are loaded in trays that hold up to 50 pieces. Each tray is given a number corresponding to that assigned to the matching batch of envelopes, and is then placed on a conveyor and transported to the darkroom for splicing. Customer envelopes are routed to various sections for matching with processed film.



Quality Control

Splicing

Rolls of movie and slide film are joined together with staples, eyelets, or splicing tape. Spliced film is spooled to form a processing reel, placed in a reel can and covered to prevent damage from light. The tray number is affixed to the can cover and the can routed to the continuous film processing section. The splicing of roll film strips before or after processing is currently being adopted by many photofinishers to meet the changes in some printing operations.

Chemical Mixing

Bulk chemicals in the form of concentrated liquids, powders, and crystals are measured and weighed, and mixed with water of specified temperature in large tanks. They are stirred and agitated with electric mixers. Prepared solutions, often referred to as processing kits, are available complete with mixing instructions and are used by some laboratories.

Quality Control

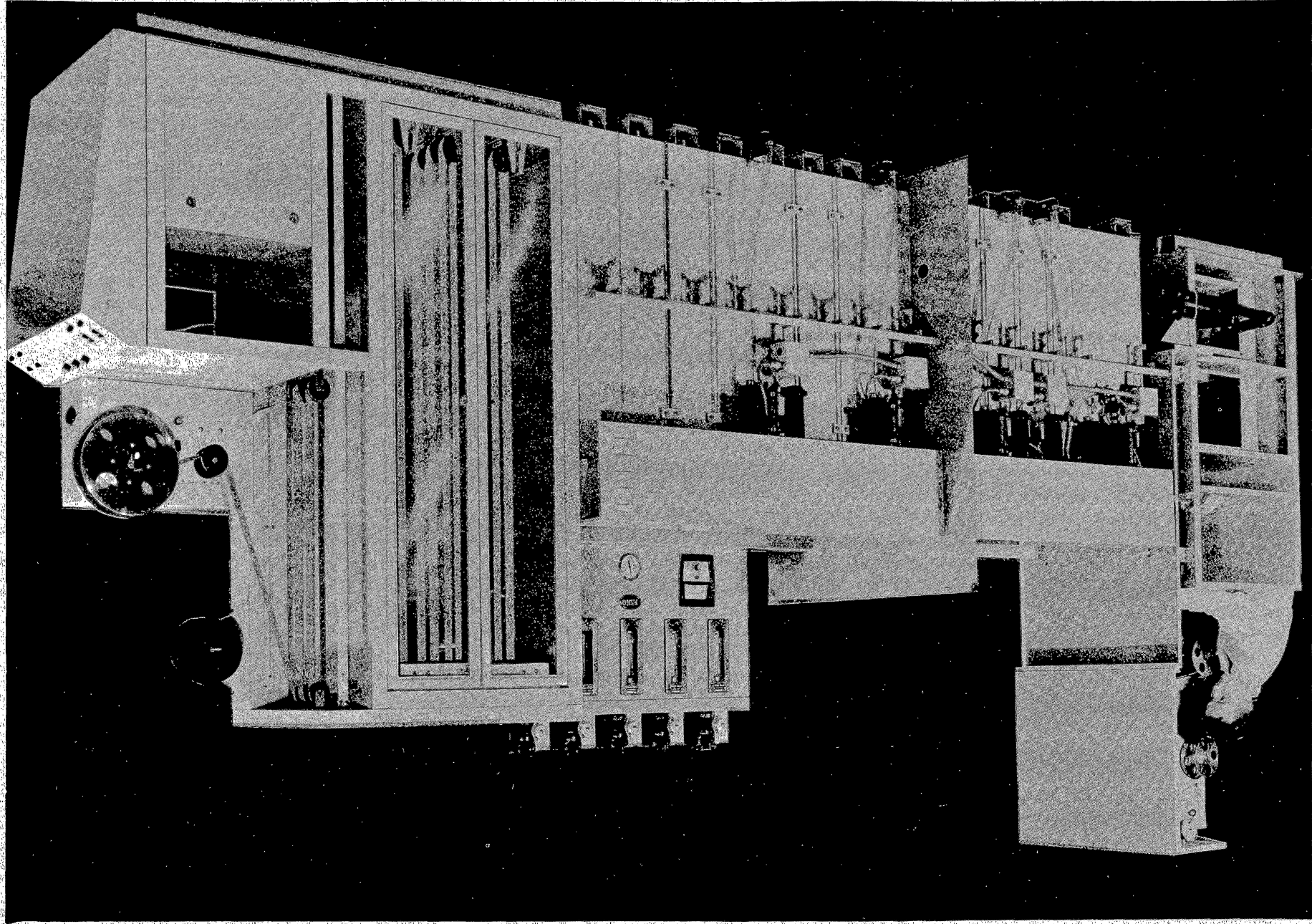
After mixing, solutions are tested for conformance to manufacturers' and individual companies' quality control standards. Solutions are also tested periodically for pH content. Control strips of film and paper are run through the process and tested on the densitometer or sensitometer. Results are plotted to provide a visual record of processing condition of solutions and of temperature rates. Daily records are maintained which indicate quantity and type of solutions prepared. Approved solutions are transferred to processing or storage areas.

Strip Film Processing

Film such as Kodacolor, Ektacolor, and black and white (except movies) are developed on racks. Film is stripped of its paper backing in the darkroom, and twincheck is pasted to one end of the film which is then clipped to the rack. A weighted clip is attached to the hanging end to hold the film rigidly during its travel through the film machine. Specially constructed hangers permit processing of cut film in the film machine.

Take-Down

The weighted clips are removed from the hanging film while it is still in the drying cabinet, and the clips are returned to the darkroom. Rough film ends are trimmed and racks removed from the dryer. Film is sorted according to size. Regular negative film is



Continuous Film Processing

routed for printing, slide film for mounting, and cut film for proofing or printing. Blank film is removed and routed to supervisor for disposition.

Continuous Film Processing

In the darkroom the processing reel is loaded on a spindle of the processing machine. The end of the reel is stapled to a leader or another reel already threaded through the machine. As the spindle turns, the film is pulled through various solutions and rinses, over and under rollers, and onto the take-up master reel.

Take-Off

When the master reel is filled, the film is cut at a spliced section and removed from the machine. The hanging end is attached to a take-up reel to start another master reel. The reel which was removed from the machine is positioned on a spindle at a viewing table and run off to detect dust particles or other flaws. Double 8mm film is routed for slitting; other sized film is routed for cutting and mounting as slides or is separated into individual rolls and matched by twincheck to their original envelopes.

Slitting

Processed double 8mm film is cut to size by machines that slit the film. The ends are then spliced together and spooled to form individual reels which are matched by twincheck to the original envelope and sent to packing and pricing.

Mounting of Slides

Automatic machines cut the film into individual slides, insert the slides into mounts, heat seal and then drop them into a hopper or mount catcher. Slide film can also be cut and mounted by hand, and heat sealed in a mounting press.

Mount Inspecting

Slides are removed from the hopper and inspected for centering and sealing. The individual rolls are matched with original order envelopes, and boxed for pricing and shipping.

Printing and Enlarging

Negative strips and single negatives are exposed to roll and sheet paper on a variety of printing machines equipped to print



Hand Developing

color or black and white. Some enlarging color printers are supplied with necessary modifications to make black and white as well as color enlargements. Roll paper is loaded in print machines under darkroom conditions although some of the printing is accomplished in lighted areas. After roll paper is exposed, it is wrapped to avoid light damage, identified for type, and routed for paper processing. Matching negatives from which the prints were made, together with their order envelopes, are then routed to film cutting. Exposed sheet paper is routed for hand developing.

Continuous Paper Processing

The roll of paper is loaded on the spindle of a processing machine, and the end of the roll is spliced and heat sealed to a leader or another roll already threaded through the machine. As the drying drum turns, it pulls the paper through the process, onto the drum and then to the take-up spool. The roll of developed prints is cut from the machine roll at the spliced section and routed for cutting.

Hand Developing

Prints made on sheet paper are developed in a tray until the image appears with the correct tone and density. The prints are then deposited in a series of other solutions and rinses in prescribed sequence until ready for drying. After the final rinse, the prints are transferred from the rocker tray to the apron of the dryer. The drying drum picks up the prints as it rotates, and automatically ejects them into a catcher when dry. Dry prints are routed for inspection and finishing.

Coloring

When prints are tinted, oil paints, water colors, or colored pencils are used to give a life-like appearance. The colorist follows a chart, blending colors to obtain desired results.

Proofing

Negatives and selected paper are placed in an automatic machine to produce the proofs, which are then sent to the customer for approval. After customer selection, the proofs are returned to the laboratory with instructions for finishing.

Negative Retouching

When proofs are returned, the negatives are retouched to remove distortions such as stray hairs, lines, or blemishes. The corrected negatives are then routed for printing.



Pricing

Film Cutting

Automatic, semi-automatic, or hand cutters are used to cut film. Pinholes punches in the film during printing operations pass over the micro-switch and activate blades that cut the film into single or multiple units. Other cutters are operated manually and sometimes the film is cut with a paper cutter or scissors. Cut film is placed in picketed envelopes or wallet-type folders.

Print Cutting

The processed paper roll is positioned on a spindle or holder and the end threaded through preset guides of an automatic or semi-automatic print cutting machine. As the graphite mark on the reverse side of the print passes over the micro-switch, it actuates the blades, cutting the roll into individual prints.

Inspecting

Assembled orders are checked to ensure that customer requests have been filled and order is complete. Prints are counted and examined for quality. Checking and inspection are often accomplished with the aid of reflected or direct lighting on a glass viewing table. Color prints requiring color correction are marked with standard symbols and returned to the printer for color correction. If black and white prints appear too dark or too light, they are marked and returned for make-over. Corrections to black and white enlargements are made using special lead pencils to increase shades, and erasers to reduce shades.

Packing

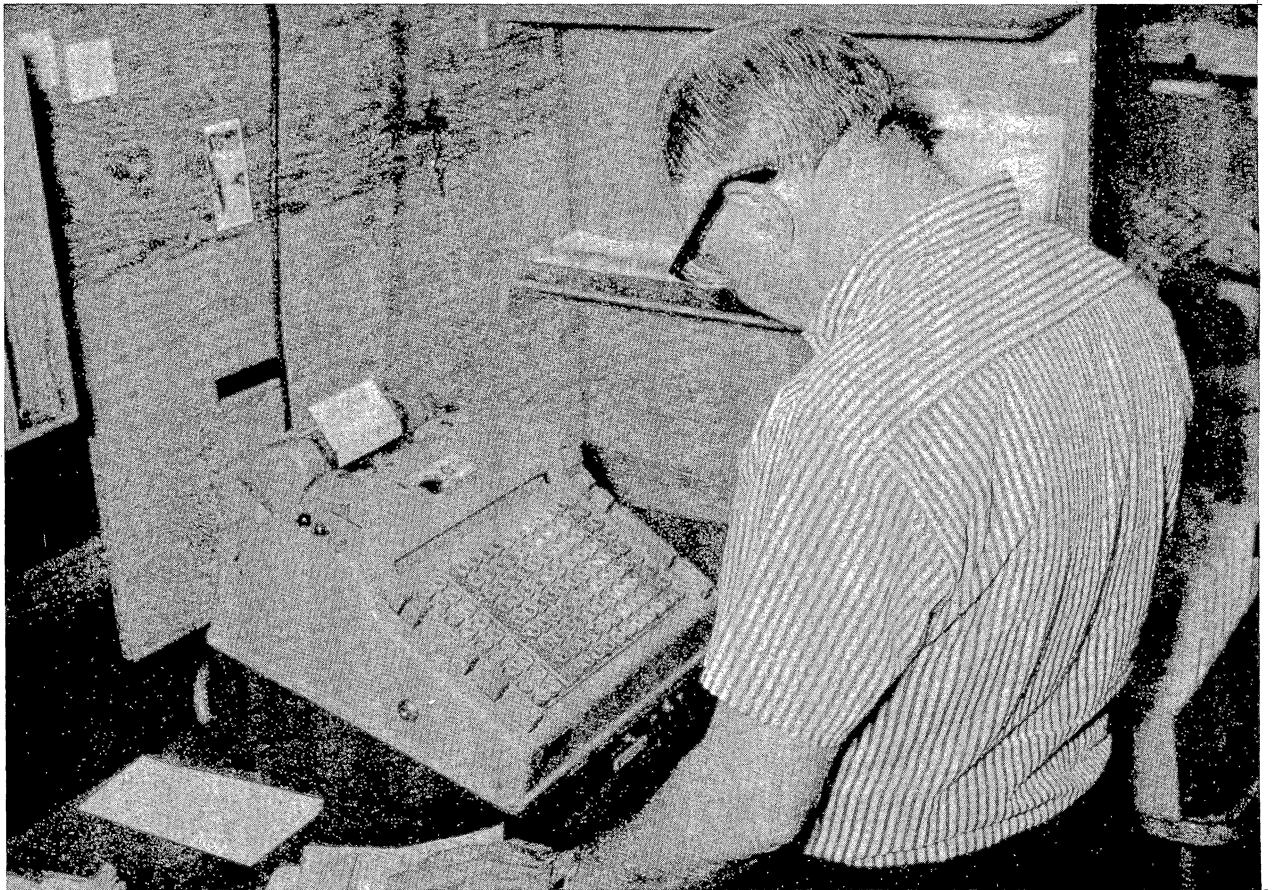
Prints and negatives in pocketed folders are inserted into customer envelopes. Enlargements sometimes require trimming of edges, and, when requested, are framed in cardboard or plastic folders. They are usually covered with cardboard and bagged, or placed in boxes for protection during shipping. Frequently informational leaflets, coupons, and other advertising materials are inserted in the order envelopes. Boxes and envelopes are then sealed with tape or staples. Mail order envelopes with metered stamps affixed are deposited in mail bags for pick-up. Other customer order envelopes are routed for pricing.

Pricing

Orders are priced according to services requested. In some companies, price stamps are used for film and prints of the same size and cost. However, for orders that require calculation to determine the charges, prices are written on the order envelope.



Filing



Billing

Filing

After packing and pricing, customer envelopes are batched by route number to keep orders together for delivery to corresponding retail locations. Each batch is then banded together and placed in a file tray for billing.

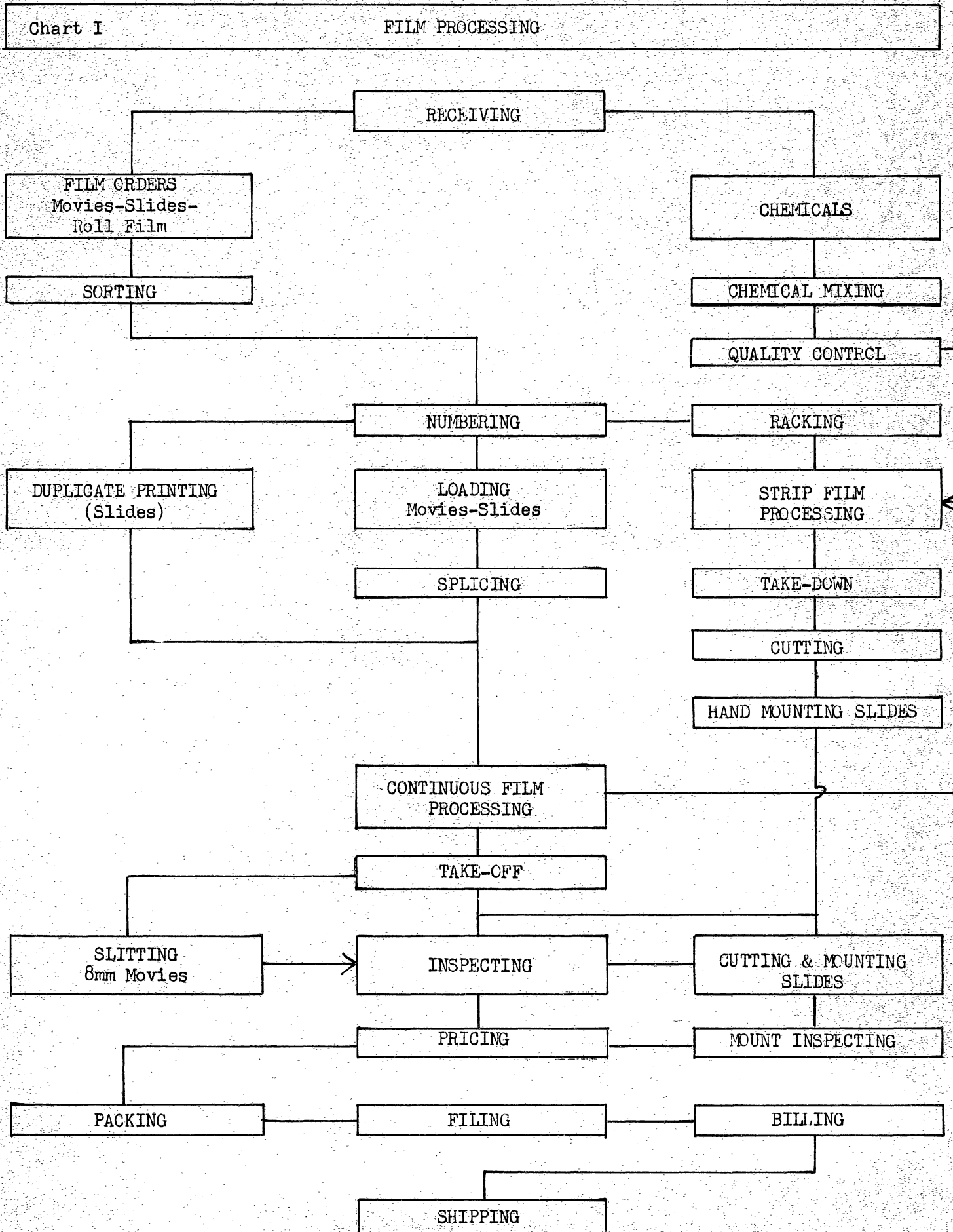
Billing

Filed orders are routed to the billing department where identification data, such as retailer's name, route and twincheck numbers and price are typed on the invoice sheet. The invoice sheet is then attached to the retailer's order, ready for delivery.

Shipping

Completed orders are delivered by routemen, or sent to the customer by air, regular mail or freight service, or personally picked up by the customer. Bills of lading are prepared as required to ensure identity of contents shipped.

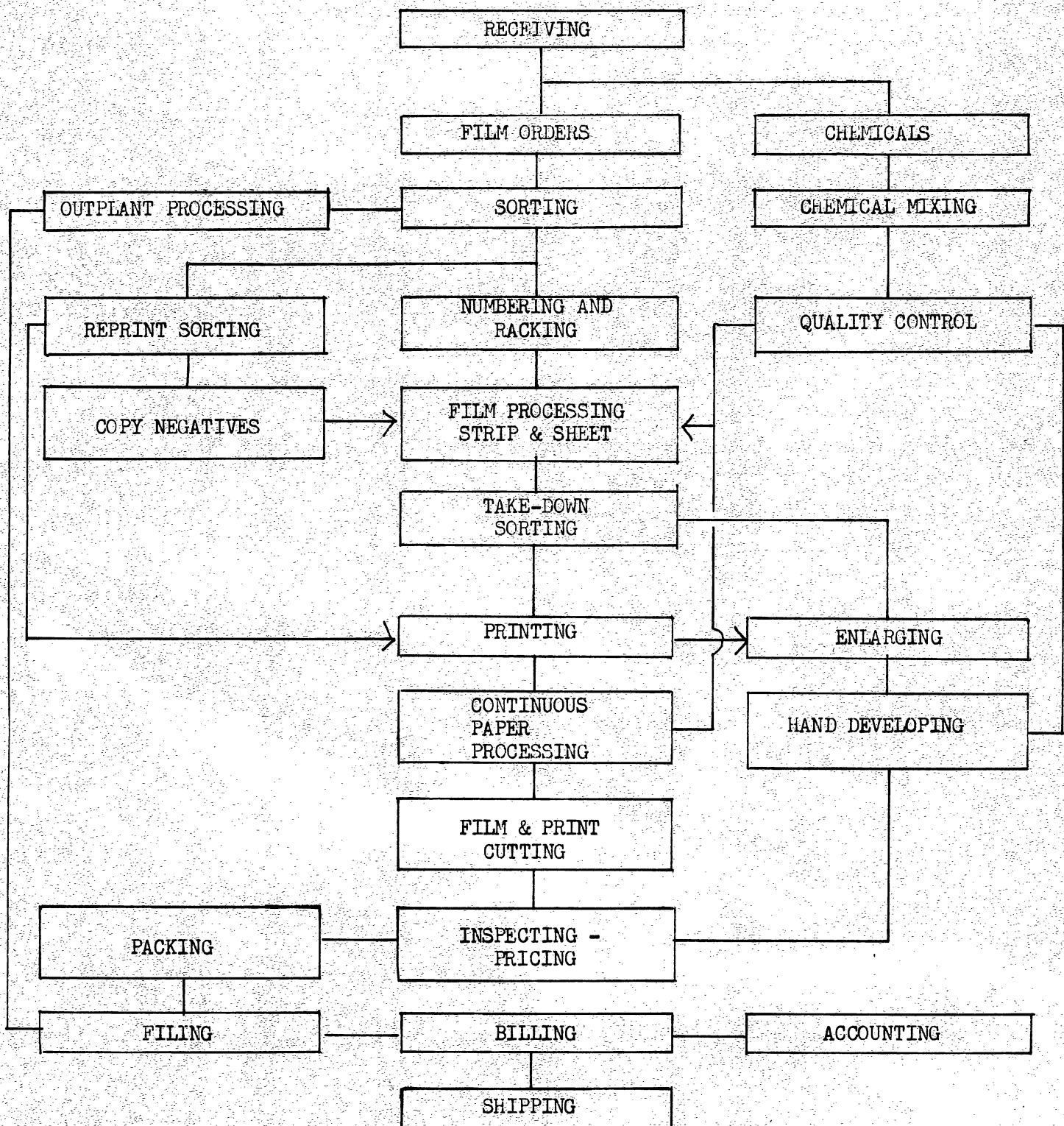
PROCESS FLOW CHART



PROCESS FLOW CHART

Chart II

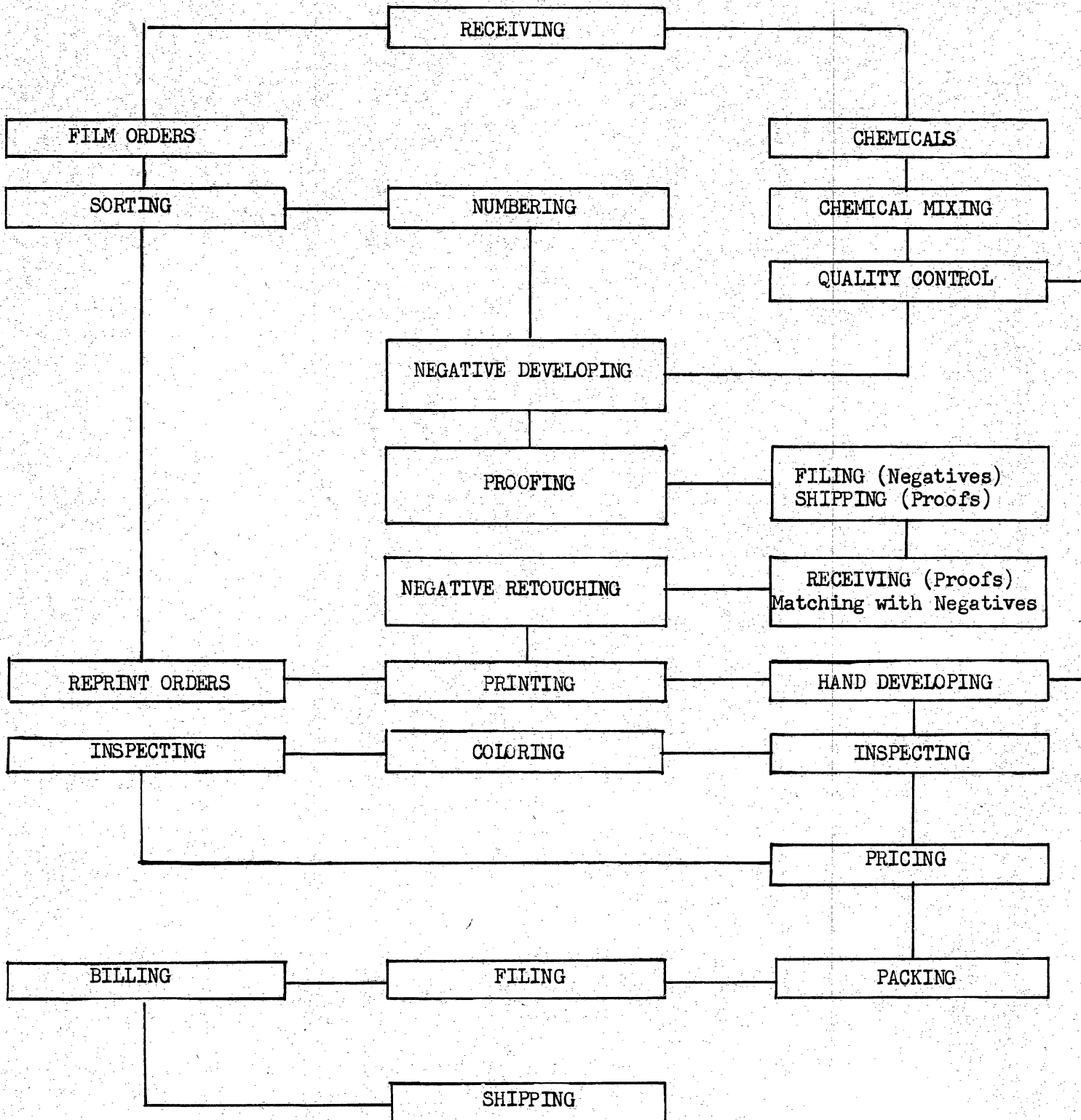
PHOTOFINISHING



PROCESS FLOW CHART

Chart III

CUSTOM PHOTOFINISHING



GENERAL EMPLOYMENT CHARACTERISTICS

Employment opportunities in the industry embrace a myriad of occupations ranging from lesser skilled jobs requiring no experience to administrative and highly technical jobs which may be acquired only through extensive education or training. In order to reflect the essence of the industry and its attendant problems, however, only those jobs which deal with occupations directly related to the processing and finishing of film are described in this brochure. Selection of workers for these jobs is dictated mainly by local job market conditions and is contingent upon certain selection factors. Illustrations of these factors are described in the Interests and Temperaments Sections of the JOB DESCRIPTIONS. Interests indicate that for many jobs the worker must generally have a preference for working with things and objects while performing tasks that are routine, concrete and organized. Temperaments for these jobs are usually described as the ability to adjust to situations involving repetitive or short cycle operations, carried out according to set procedures.

In addition to interest and temperament factors, there is often a minimum educational requirement of two years' high school. However, employers frequently accept workers with a genuine desire to work and with manual dexterity rather than scholastic achievement. These are considered to be prime ingredients for the successful performance of many jobs, regardless of educational attainment.

On-the-job training is prevalent throughout the industry. The length of training varies according to the job, but workers often gain full competence in entry jobs after a maximum of one month of training. Employers generally agree that length of training is secondary to the worker's ability to work rapidly and accurately, and to follow uninvolved instructions. Up-grading is based on individual initiative and ability to learn.

Inexperienced workers such as recent high school graduates and non-graduates, college students, housewives, and handicapped workers, are hired for many jobs throughout the industry. College students comprise much of the summer and part-time work force. Housewives may be employed in such jobs as mounter, pricer, slitter, splicer, and packer, because the work is light and sedentary and often requires a high degree of motor coordination and finger dexterity. Also, many of these jobs are performed on the night shift, enabling employers to hire women who cannot work during the daytime. Handicapped workers, such as the deaf, may be employed to sort, rack and take down film, as such jobs require no verbal communication. Blind workers, relying on their sense of touch, can be trained to strip and hand film on the processing machines; while workers with limited use of legs or feet can work in various sedentary jobs.

A study of environmental conditions reveals that plant layouts are usually designed to prevent dust and light from ruining the film. Installation of exhaust fans and dust-retaining rugs are means

by which many plants eliminate the accumulation of dirt and reduce chemical fumes and odors. Room temperatures are controlled to protect sensitized paper and film from damaging effects of heat and humidity. The significant hazard to workers in most plants is the possibility of skin irritation caused by chemicals. Workers who handle chemicals are usually supplied with protective equipment such as gloves, boots, and coveralls, and are instructed to wash their hands frequently.

A crucial problem facing the industry is a shortage of skilled workers, particularly Maintenance Mechanics and Electronics Technicians. In order to alleviate this shortage, leading manufacturers of processing equipment have instituted special courses and training programs in their own factories and in companies using their equipment. While these programs have to some extent provided plants with trained manpower for their complex equipment and machinery, there still remains a critical demand for skilled workers.

To attract workers, many inducements, such as profit-sharing plans, automatic pay increases, periodic job changes, health and accident insurance, life insurance, pension plans, and paid holidays have been offered by some companies in order to compete with other industries.

TRENDS

Recent and continuing innovations that make cameras easy to operate, and thus more attractive to buy, have contributed significantly to the steady growth of the industry. Items such as high speed film, drop-in film cartridges, automatic exposure meters, flash cubes, and small cartridge movie cameras, attract amateur and professional alike. They have also been credited with arousing or increasing an interest on the part of women in a field at one time considered primarily man's domain.

While overall production reached a new high following the 1966 Christmas season, the processing of black and white film showed only slight gain. Color film, exposed with instamatic cameras, on the other hand, accounted for more than 50 percent increase in production for the laboratory. Super 8mm film, which gave the consumer a bigger image and a marked increase in screen brightness, added significantly to the volume of movie film for processing.

In order to accommodate improved film and the upsurge in volume, manufacturers constantly search for new and improved methods and techniques. This is reflected in the development of high production equipment and accessories. A new color printer designed to accommodate 126 and 620 color film, is geared for the production of 2,000 prints an hour; and it is two to three hundred percent faster than most color printers in the production of other sized negatives. An automatic programmed color film processor, which also handles black and white film, is equipped with interchangeable programming devices for film in sizes such as 35, 46 and 70mm. Other machines complete the processing of film from start to finish in 18 to 20 minutes. Super 8mm film not compatible with double 8mm processing equipment requires modification of existing or purchase of new equipment. Auxiliary equipment, such as automatic counting machines that accumulate the number of prints produced and record production totals; high speed conveyor systems which transport work from station to station; roll paper easels that automatically feed paper into the enlarger; and negholders used for automatic positioning of negatives for viewing, are some of the mechanized aspects of auxiliary equipment available to the industry. Many companies now install punch-card, computer-invoicing, and billing systems, resulting in change in duties and responsibilities of employees, and giving the office the same mechanized aspect as the production department.

Developments in equipment and processes have made it possible to provide the professional with quality and speed in photo processing. This growing volume of trade coming to the laboratory indicates a favorable trend for the industry and has opened new avenues of work. Some laboratories formerly catering to the amateur only are now adding departments, and in some instances entire plants, to handle the increase in work presently being submitted by

professional photographers. Use of the laboratory by the latter indicates the great growth potential that lies still untapped by the photo processing industry in commercial and industrial markets.

In keeping with the speed required in processing work, manufacturers of chemicals used in processing film and paper have boxed, bagged, and bottled ingredients to prepare ready-to-use kits. Many small laboratories use these pre-mixed chemicals. Such chemicals give laboratories the advantage of time saved and storage space that can be utilized for working areas.

Efforts have been initiated by many schools to fill the need for administrative, technical and operating personnel created by the growth and mechanization of the industry. A few colleges now offer an academic degree in photographic science and engineering, which includes such courses as aerial photography, graphic arts, photomicrography, and nuclear physics. Also, a step toward stimulating interest in photo processing activities that require lesser skills is the inclusion of courses in photography in high schools and vocational schools. Hopefully these sources are expected to help alleviate the acute manpower shortage by providing personnel who possess skills that are vital to a burgeoning industry.

Increased costs in operation and the ability to diversify activities have caused some companies to enter other fields. Wholesale merchandising operations, which supply photographic equipment to retail outlets, now provide about one-seventh of the total profit for those companies. Mergers and acquisitions have expanded services to include the import and distribution of foreign photographic products, and the manufacture of photographic equipment and darkroom supplies.

Progressive expansion of photography, as one of America's leading hobbies, and extension of its uses in medical science, probing the atom, exploring outer space, investigating ocean depths, and filming the news, will undoubtedly result in an increased volume of film requiring processing. Keeping pace with the demand will enhance the industry's important position in the American economy, and thereby continue to provide unlimited opportunities for employment.

ARRANGEMENT OF PUBLICATION

The occupations presented in this brochure were selected for the purpose of describing jobs which: 1) appear to be typical of those suitable for people in the labor market who lack education and job skills; and 2) are demand occupations because of a shortage of skilled workers. They are considered to be basic jobs that are directly concerned with the processing and finishing of photographic film. The occupational data was assembled from many different sources and is a reflection of existing conditions. Because the data reflects the occupational situation as it exists in a variety of localities and establishments, the descriptions must be considered as composites of jobs and cannot be expected to coincide exactly with any given job in a specific organization. It will be necessary, therefore, to adapt descriptions to fit individual jobs before they can be used with complete accuracy. For that reason it also is important that the user of this material be familiar with the purposes and meanings of the various sections included in this brochure and of the several parts of the individual job descriptions.

A number of sections are presented in the publication for the reader's use and guidance. Following the arrangement of job descriptions and the individual descriptions themselves, definitions of worker traits are presented. A brief definition of each factor is necessary in order to place the specific ratings for each individual job within the framework of the total component.

A glossary of technical items follows the definitions of worker traits. Although the glossary is by no means exhaustive, it is in sufficient detail to provide an understanding of the more common terms used in connection with film processing and finishing, including those terms used in various job descriptions.

The next section comprises a bibliography of references used in this study which is sufficiently diverse to provide a general knowledge of the technical aspects of the field.

The index of occupational titles is included to provide a ready reference for the location of occupational descriptions by their many common titles. This data will provide a useful tool to those concerned with placement, counseling, and training.

ARRANGEMENT AND CONTENT OF JOB DESCRIPTIONS

The job descriptions are arranged by title in alphabetical order. The wording of the title appearing at the head of each description reflects common usage throughout the country. Following the main title appears the code or code grouping which identifies the job within the present classification structure of the third edition of the Dictionary of Occupational titles, published in 1965. Other titles, or alternate titles, by which the job is known also appear at the head of each description in lower-case letters.

Occupational Definition - This presents a brief description of the duties of a particular occupation. It provides an understanding of the tasks performed and the skills and knowledge necessary for the performance of those tasks.

Education, Training, and Experience - This section provides an indication of the amount of education and the level of training and experience usually required for employment in the occupation. As previously mentioned, the various occupations and qualifications are not always standardized and considerable variation exists among employers as to required education, training, and experience. However, an attempt was made to indicate the range of such requirements.

Worker Traits - This section provides some estimate of the worker trait requirements of the occupation. It has long been believed that the ability of an individual to adjust to a specific type of work situation is as significant as the education and training qualifications he brings to the occupation. Consequently, judgments by trained personnel have been in terms of components consisting of aptitudes, interests, temperaments, physical activities, and environmental conditions to which individual workers have to adjust. A listing and definition of each factor for the various components is contained in the WORKER TRAITS Section, pages 116 through 123.

Aptitudes - These are the specific capacities or abilities required of an individual in order to learn or perform some task. This component, made up of 11 specific aptitude factors, includes the nine aptitude factors contained in the General Aptitude Test Battery developed by the United States Employment Service and two additional ones not measured by the GATB. Those aptitudes were selected which seemed significant in the occupation and are identified in terms of specific work situations. The factor of intelligence, however, was not rated because of the difficulty in writing meaningful descriptive statements for this relationship.

Interests - This component is defined as a preference for a particular type of work experience. It consists of five pairs of bipolar factors, arranged so that a preference for one factor in a pair generally indicates a lack of interest in the other factor in the pair. Those factors were selected which seemed to be significant to the job in question, and were identified in terms of specific situations.

Temperaments - The temperament component consists of 12 factors that reflect different work situations. Each work situation describes a type of activity that demands a different adjustment on the part of the workers. Those temperament factors were selected that appeared significant in the occupation, and are identified in terms of specific duties.

Physical Demands and Working Conditions - These reflect working conditions which make specific demands upon a worker's physical capacities. There are six physical activities factors and seven environmental conditions factors. Those factors were selected that were significant in the occupation in the sense that they met established criteria for successful performance.

COMPOSITE JOB DESCRIPTIONS
FOR
SELECTED FILM PROCESSING
AND
FINISHING OCCUPATIONS



Adjustment Clerk answering customer inquiries and obtaining information to investigate complaints.

ADJUSTMENT CLERK
241.368
telephone service girl

Occupational Definition

Investigates customer complaints received by telephone pertaining to missing prints, incomplete orders, and overcharges. Records information on order card, and notes call on telephone record sheet. Determines area of investigation from obtained information and knowledge of departmental activities. Telephones or visits designated departments to investigate complaints. Sends letters of acknowledgment or return tracers for additional information on orders to customer when difficulty is encountered.

Compares prices charged customer with those listed on prepared price list. Prepares credit slip for overcharged amount and submits to supervisor for approval. Telephones stores on routes to determine location of mis-sent orders and to direct their return to route driver. Reports errors in deliveries to route supervisor.

Initiates plant search for missing film upon receipt of completed tracer card from customer. Compares unidentified prints in file with tracer card data and selects prints that match descriptions. Telephones or writes customer regarding shipping date of order, and follows up to ensure timely shipment. Prepares daily production sheet showing type and quantity of complaints handled.

Education, Training, and Experience

High school graduation is usually preferred. Worker receives on-the-job training for one month to learn types of film orders and prices, and how to handle and follow up telephone complaints such as missing prints, incomplete orders or overcharges.

Worker Traits

Aptitudes -

Verbal ability is required to understand complaint and to formulate reply.

Numerical ability is necessary for calculating overcharges and filling out credit slips.

Form perception is required to recognize subjects and backgrounds in customer's negative and match with prints in file.

Spatial perception is required to visualize missing print from verbal description supplied by customer.

Clerical ability is required to compare customer charges with prepared price list to detect overcharges for services and to prepare accurate form letters, return tracers, and credit slips.

Motor coordination, finger dexterity, and manual dexterity are required for handling film bags, prints, and tracer cards.

Color discrimination is required to recognize differences in shades when examining color prints.

Interests -

A preference for activities involving business contact with people to receive and resolve customer complaints regarding film services.

Temperaments -

Situations involve dealing with people and communication of ideas to discuss and resolve customer complaints concerning missing prints, deliveries, or pricing errors. Situations also require evaluation by selection of missing prints from loose print file on basis of tracer card information, using judgmental criteria.

Physical Demands and Working Conditions

Work is sedentary, involving occasional carrying of film bags weighing up to five pounds.

Work involves reaching for and handling order cards, credit slips, telephone, and film bags.

Normal talking and hearing are involved while speaking to dealers and customers on telephone and listening to telephone complaints.

Near visual acuity is required for inspecting loose prints in unidentified print file, and for reading price lists of service charges. Color vision is required to inspect prints in file for identification of subjects or backgrounds when locating lost prints.



Blister Packer inserting wooden form under
heat sealing element to package photographic
items on sales display cards.

BLISTER PACKER
920.885
assembler

Occupational Definition

Tends heat-sealing machine that bonds edges of pre-formed plastic shells containing packaged photographic items to sales display cards: Depresses button to activate heat-sealing element in machine plate. Inserts plastic shells into wooden forms and manually presses edges against forms to ensure tight fit.

Selects merchandise, such as film, flash bulbs, or batteries, assembles in shells, and places wooden forms loaded with shells into well of heat-sealing unit. Positions vari-colored display cards, face down, over forms to cover open ends of shells.

Depresses and raises level alternately to lower heated metal plate and seal plastic shells to cards, and to raise plate from card after bonding is completed. Removes completed display cards from forms and stacks for shipping. Removes wooden forms from machine to work area for re-use.

Education, Training and Experience

Training on-the-job for one week is given to teach packaging procedures and use of heat-sealing machine. This is an entry job requiring no previous experience.

Worker Traits

Aptitudes -

Form perception is necessary to fit plastic display shells into wooden forms and align merchandise in shells in compactly fitted manner.

Motor coordination, finger dexterity, and manual dexterity are required for frequent reaching, handling, and fingering of items such as wooden forms, shells, film, flash bulbs, and completed display cards.

Color discrimination is required to distinguish various color coded items and display cards.

Interests -

A preference for working with things and objects in a routine and organized manner to insert pre-formed plastic shells into wooden cup forms and pack such items as film, flash bulbs, and batteries.

Temperaments -

Worker performs repetitive tasks, selecting merchandise items for display cards, loading them in plastic shells, and using heat-sealing machine to bond shells to display cards.

Physical Demands and Working Conditions

Work is light, involving lifting and carrying of film and photographic supplies weighing up to twenty pounds. Hand and arm movements are involved when depressing or raising lever on heat-sealing machine to lower or raise heat-sealing unit.

Worker frequently reaches for, handles, and fingers wooden forms, display shells, and merchandise during performance of duties.

Near visual acuity is required to align edges of plastic bubble with rim of wooden form. Color vision is required to distinguish differences in colored items.

CHECKER
209.688
checker, billing department

Occupational Definition

Verifies account numbers on invoices and customer bags against numbers on dealer's list, and counts entries and bags to ensure charging of each to dealer's account: Removes bags from bins and positions on work table for checking. Compares dealer account numbers on invoices attached to customer bags with account numbers on lists, to ensure assignment of correct dealer number. Counts number of customer bags in batch and compares total number against number of entries on invoice to ensure billing dealer accurately for individual orders.

Enters own identification number on reviewed invoice to verify accuracy of dealer account numbers and to account for each customer bag by an invoice entry.

Records time on route register when orders are sent to distribution room, to maintain record of length of time required for processing individual orders in plant.

Education, Training and Experience

Two years of high school preferred. Short demonstration on-the-job is given to acquaint worker with duties. No previous experience is required for this entry job.

Worker Traits

Aptitudes -

Numerical ability to count accurately number of customer bags in batch, and number of invoice entries.

Clerical perception to check dealer account numbers on invoices against account numbers on list to ensure correct processing charges.

Interests -

A preference for activities involving things and objects is required for handling bags of film and dealer account number lists.

An interest in routine and organized work situations to compare dealer account numbers on invoices and lists.

Temperaments -

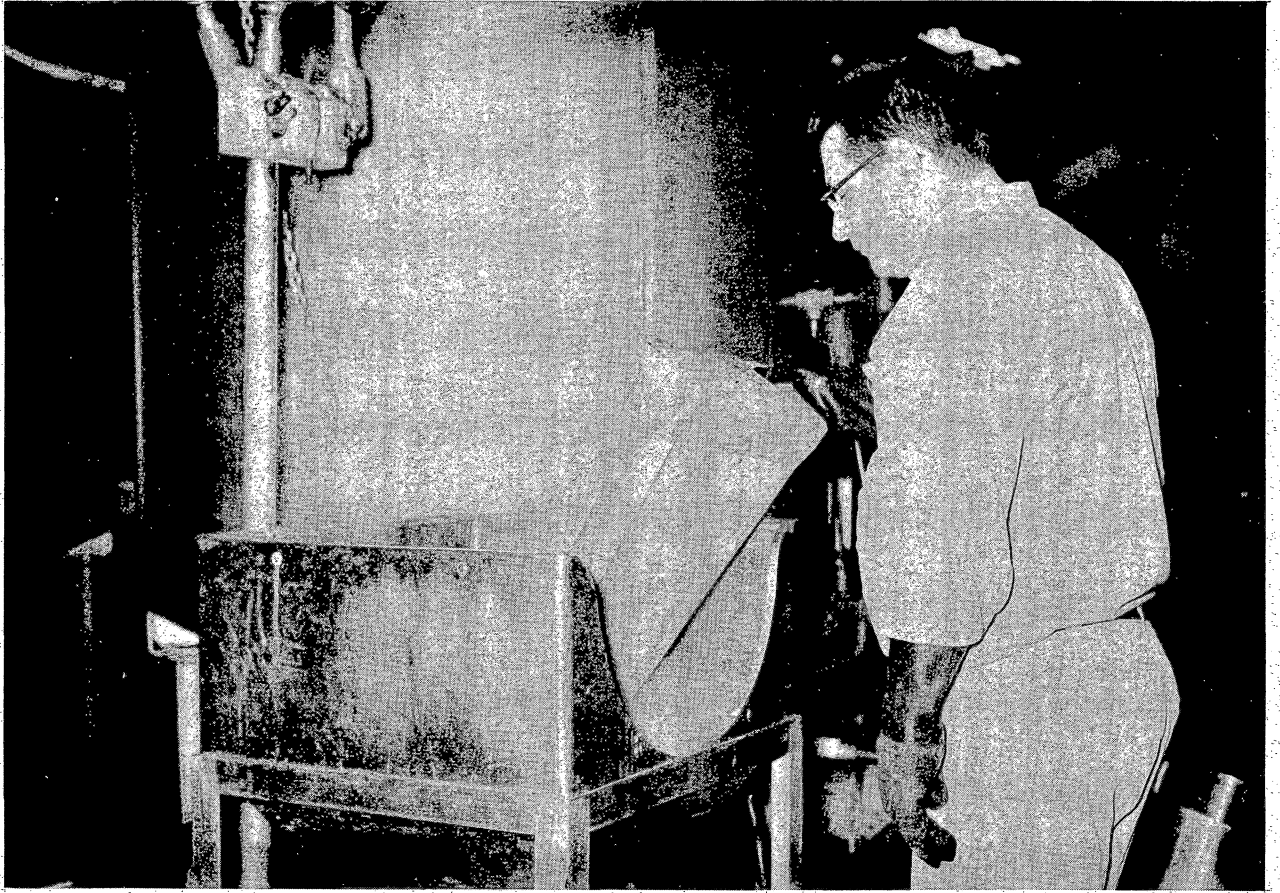
Situations involving repetitive or short cycled operations performed under established procedure to count orders and compare dealer listings with entries on invoices. Little or no independent judgment or action is required of the worker.

Physical Demands and Working Conditions

Work is sedentary.

Worker constantly reaches for, handles and fingers bags of film, and dealer account number lists and invoices.

Near visual acuity is required for comparison of dealer account numbers on lists and bags.



Chemical Mixer dumping dry chemicals into hopper
to prepare solutions used in processing film.

CHEMICAL MIXER
976.884
mixing machine operator

Occupational Definition

Mixes specified dry and liquid chemicals with water in tanks to produce various solutions for use in processing film and prints, according to formula; Sets thermostat to heat water, or adjusts mixing valves while observing thermostat, to admit water of specified temperature to designated level in tanks. Weighs specified dry chemicals, or obtains them in pre-weighed containers.

Dumps chemicals in prescribed sequence into tanks to prepare such solutions as black and white or color developer, hardener, fixer, or bleach. Starts agitators, sets timer, and allows solutions to mix for specified time.

Drains samples of solutions from each tank, uses pH meter to test for acidity and alkalinity, and submits samples to laboratory for analysis; or observes solutions for color and odor during mixing process and adds ingredients indicated in chemical manufacturer's instructions. Reviews laboratory report and adds required amount of chemicals to attain standard solutions.

Stops agitators, uses hand tools to connect hoses, opens valves, and starts pumps to transfer mixed solutions into storage tanks or processing tank lines. Maintains daily record indicating receipt, transfer, recovery, and/or usage of chemicals, and quantity and types of solutions prepared.

May tend centrifuge to separate and reclaim solid chemicals from waste liquid, empty centrifuge bag contents into drying box for removal of moisture, and deliver samples to laboratory for analysis. May grind salvaged dry chemicals using hand grinder, for re-use in processing. May clean mixing tanks, using long-handled brushes and water. May recover silver from used solutions by electrolysis or chemical precipitation.

Education, Training and Experience

High school graduates with courses in mathematics and chemistry are preferred. Experience in film or paper processing or inspection is generally a prerequisite for promotion, supplemented by on-the-job training up to two months to become proficient in mixing chemicals into various solutions.

Worker Traits

Aptitudes -

Verbal ability is necessary to follow written processing

procedures and laboratory reports of sample solutions, and for making adjustments to solutions.

Numerical ability is required to weigh chemicals and maintain daily records indicating quantity and type of chemical or finished solutions received, transferred, used, recovered and/or mixed.

Clerical perception is required to maintain daily records.

Motor coordination, finger dexterity, and manual dexterity are needed to adjust valves, weigh and dump chemicals, tend mixing tanks, drain and test solution samples, and connect hoses.

Color perception may be required to determine ingredients to be added according to color of solutions, depending upon specific method of operation.

Interests -

A preference for activities dealing with things, and an interest in nonsocial situations carried on in relation to processes, machines and techniques to produce various solutions from specific ingredients in mixing tanks.

Temperaments -

Worker must evaluate mixture against sensory, measurable, and/or verifiable criteria according to applied method of operations, to attain solutions of specified standards.

Physical Demands and Working Conditions

Work is heavy, involving frequent lifting, carrying, pushing and pulling of bags of chemicals weighing up to 100 pounds with aid of hand truck.

Worker climbs to top of platform on ladder occasionally to observe operation.

Stoops occasionally to lift bags of chemicals.

Frequent reaching, handling and fingering is required to obtain and prepare various chemicals.

Near visual acuity is needed to read processing specifications,

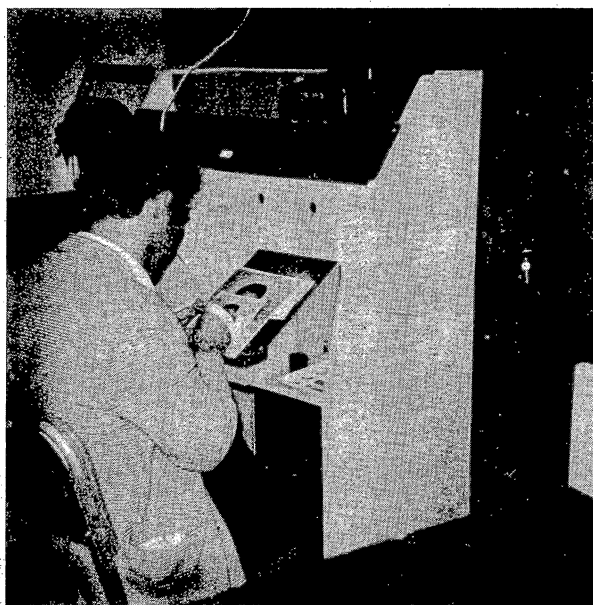
procedures, and laboratory analysis. Color vision may be required to discern color of mixtures.

Worker is subject to possible injury that might result by falling from narrow platform surrounding elevated tanks.

Worker is exposed to danger of infection and irritation from handling chemicals and film.



Chemical Mixer pouring liquid chemicals into water to prepare developer solution.



Colorist applying paint to print to
improve appearance of photograph.

COLORIST, PHOTOGRAPHY
970.381
photo colorist; tinter, photograph

Occupational Definition

Colors portraits as specified to effect a natural, lifelike appearance, using photographic oil colors and artist's paint brushes: Reads photographer's coloring instructions to determine techniques and materials required, and obtains such items as paints, brushes, cotton swabs, turpentine, applicators, palette, and mixing trays.

Deposits appropriate amount of paint on palette or in tray using applicator. Blends paints on palette or in tray to obtain desired colors, following color chart. Wipes portrait surface with swab, moistened with turpentine, to prepare for painting. Rubs surface and applies required amount of paint to tint desired area, using cotton swab. Discards swab and wipes excess paint from portrait using clean moist cotton to avoid lint deposits. Applies color to shaded spots on facial areas, using moistened cotton swab to blend colors with those previously applied. Twists camel's hair spotting brush to a point, and paints eyes in designated colors.

Wipes brush clean, using turpentine and cotton swab. Removes scratches, discernible paint strokes, and smudges from portrait, using kneaded eraser. Examines returned portraits to determine type of color changes required by customer and effects changes following photographer's instructions. May color scenic or other photographs.

Education, Training and Experience

High school graduation and art background are usually prerequisites; however, non-graduates with adequate artistic ability are generally considered for employment. This is an entry job requiring up to two months of on-the-job training to learn paint blending and photographic coloring techniques.

Worker Traits

Aptitudes -

Verbal ability is required to read instructions concerning coloring of portraits.

Form perception is required to perceive details in shapes and shadings of figures in portraits.

Motor coordination, finger dexterity, and manual dexterity are required when using cotton swabs and artist's brushes to color portraits.

Color perception is needed to select and blend required colors for proper application.

Interests -

A preference for activities resulting in tangible, productive satisfaction in effecting a lifelike appearance in portraits.

Temperaments -

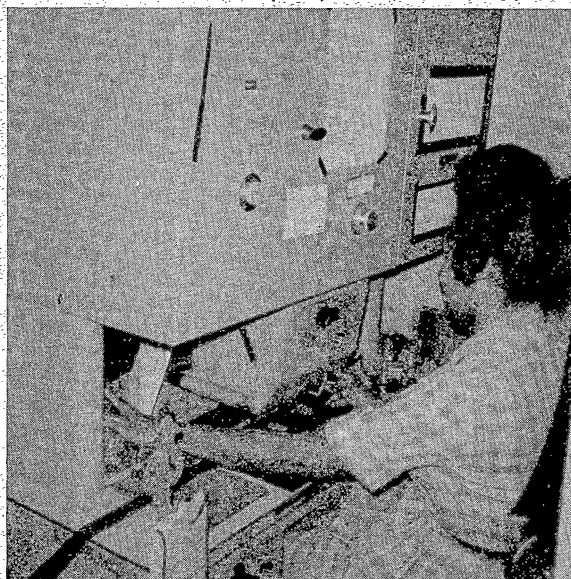
Work is repetitive in nature, involving the attainment of prescribed standards in accordance with photographer's coloring instructions. Artistic sense and judgment are required to evaluate coloring of photographs and blending of paints against sensory and judgmental criteria.

Physical Demands and Working Conditions

Work is sedentary.

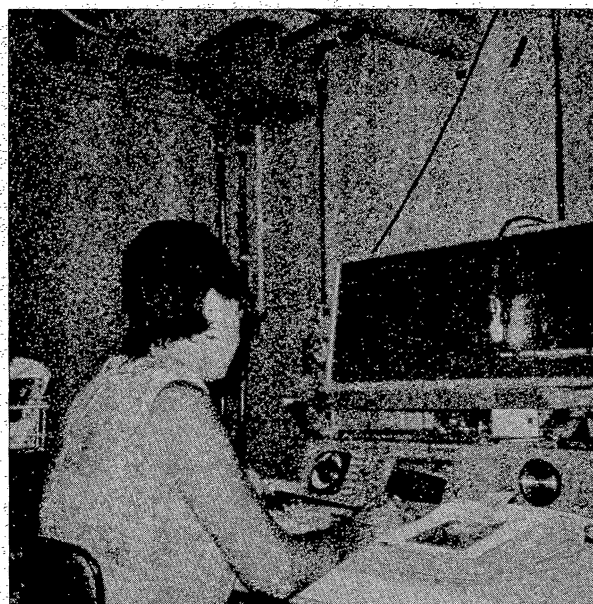
Worker frequently reaches for, handles, fingers, and feels to blend and apply paints.

Near visual acuity and color vision are required to observe and color accurately various details and features in photographs.



Color Printer Operator
feeding negative into
print machine and
selecting control setting
for application of color.

Color Printer Operator
classifying power-fed
negative on the 2620
Color Printer.



COLOR PRINTER OPERATOR
976.782
printer, color

Occupational Definition

Operates printing machine to transfer images from exposed negatives to sensitized paper to produce color prints: Loads roll of sensitized paper into printing machine, under darkroom conditions. Turns controls to adjust paper mask to correspond with size of paper being printed. Threads paper under guides and feed rollers, and uses tape to secure end to spool on take-up spindle. Pushes button to advance paper for splicing, turns lens holder to install lens, and moves lamp into position for printing.

Selects negative holder corresponding to size of negative, and snaps it into position under machine head. Observes order envelope to determine number of prints requested for each negative. Cleans surface of negative, using gloved fingers or machine blower, to prevent dust specks from marring prints. Starts machine and inserts customer envelope in numbering device attached to machine. Pushes lever, which numbers envelope and sets machine to mark identical number on first print in customer order.

Inserts and centers strip or single negative into holder and views it to determine color and density characteristics required for print. Selects and pushes equipment control settings for application of color, relying on knowledge of principal colors used and how they combine when added or deleted to produce appropriately colored prints.

Activates photomechanism to transfer images from negative to paper, using pedal control. Slides negative from holder and hangs strip and matching customer envelope on spindle, or places single negative in customer envelope and hangs on spindle.

Examines returned prints and compares with standard to detect color and density deficiencies. Reads standardized symbols written on back of print to determine corrections needed to improve its color. Inserts and centers negative in machine holder, sets controls in accordance with examination, and starts machine to specified number of corrected prints.

May place printed paper in developer solution. May insert processed negatives and prints into envelopes for return to customer.

Education, Training and Experience

High school graduation is generally required but many employers promote workers on the basis of past performance.

Workers with experience as checkers are usually promoted to this job, and receive on-the-job training of up to one month to learn printing operation.

Worker Traits

Aptitudes -

Form perception is required to observe details in negatives or strips and determine color requirements for picture characteristics.

Motor coordination and finger dexterity are necessary for rapid and accurate handling of strips or negatives, envelopes, machine devices and controls.

Eye-hand-foot coordination is needed to depress and release foot pedal at precise time in relation to other tasks required to produce color prints of acceptable quality.

Color perception is required to determine color requirements and corrections.

Interests -

Preference for dealing with things and objects and an interest in activities that are nonsocial in nature and carried on in relation to processes, machines, and techniques; and for working with printing paper, film strips, negatives, standard prints, machine devices and printing machines.

Temperaments -

Work situations are repetitive in nature and involve determination of color requirements against sensory or judgmental criteria. Worker must evaluate prints returned for correction against standard print to detect color deficiencies, and follow correction symbols to produce acceptable prints.

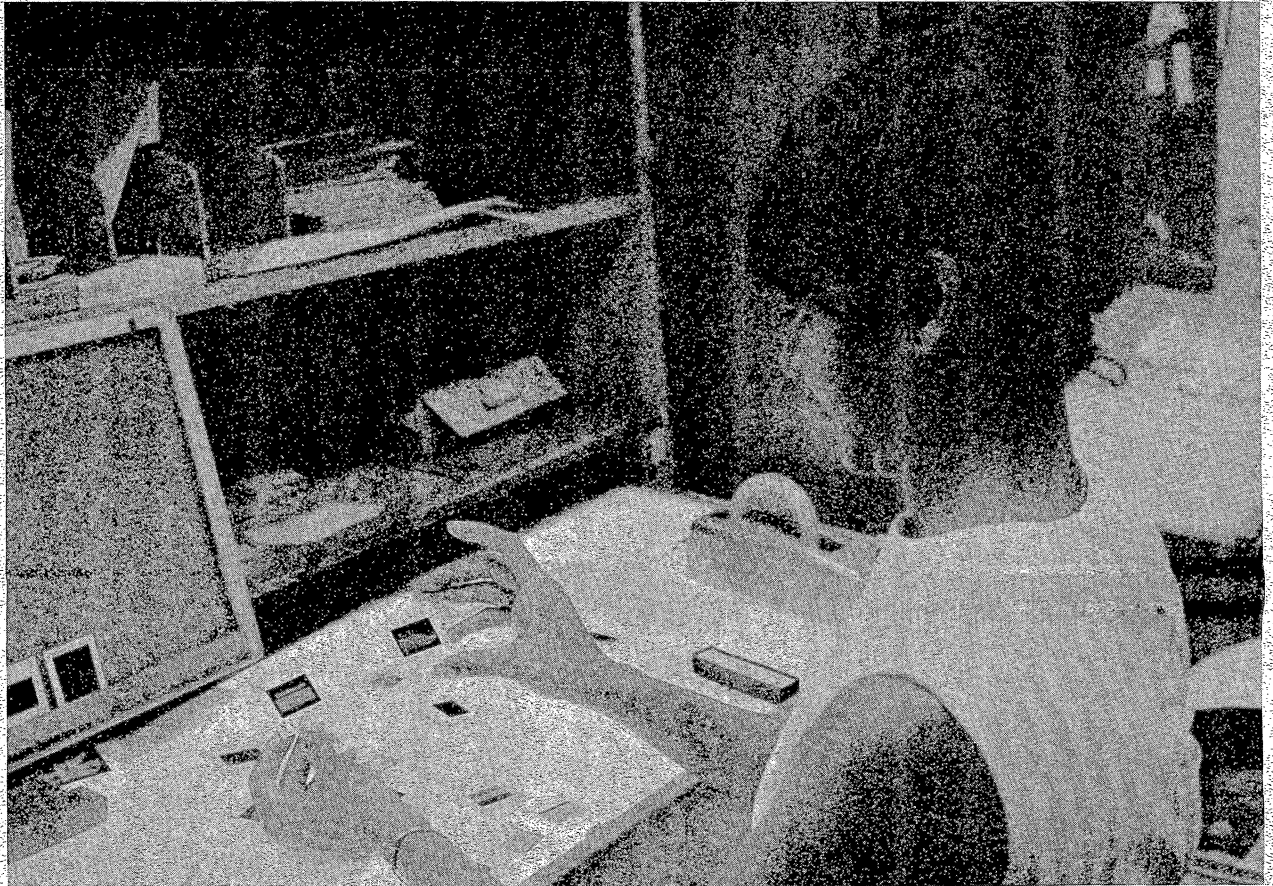
Physical Demands and Working Conditions

Work is sedentary. Hand-arm controls are required to adjust exposure time controls for each negative. Foot-leg controls are required to depress foot pedal to activate photomechanism in machine.

Worker constantly reaches for, handles, and fingers negatives, strips, prints, paper, order envelopes, machine devices and controls.

Noise from concentration of printing machines makes conversation difficult.

Near visual acuity is required for viewing negatives to determine color and density requirements. Accommodation of vision is required to load machines and view prints under darkroom conditions.



Duplicate Checker comparing color characteristics
for acceptable duplication.

DUPLICATE CHECKER
976.687

Occupational Definition

Inspects duplicate copies of transparencies for defects, and compares them with original to ensure attainment of color standards; Compares batch numbers on route card, film bin, and customer film envelopes, and matches customer identification numbers on film boxes against numbers listed on route card to determine completeness of order.

Removes original and duplicate transparencies from film box, positions them on illuminated table for viewing, and compares color characteristics for acceptable duplication. Examines duplicate transparencies to detect substandard printing, defective mounting, and such film damage as scratches and marks.

Removes minor marks from transparencies, using statomatic brush, cloth, and cleaning liquid. Sets rejected transparencies in customer film box, and uses rubber stamps and ink pad to record processing price and checker identification number. Inserts film box into bag and places bag in bin for delivery to packing department. May maintain daily production records.

Education, Training and Experience

A minimum of two years of high school is required by most employers. Experience as a duplicate printer is generally a prerequisite for promotion to duplicate checker. Training on-the-job ranges from one to three months according to ability and experience, to learn checking routines involving recognition and removal of imperfections from transparencies.

Worker Traits

Aptitudes -

Form perception is required to perceive defects in transparencies and compare duplicates with originals.

Motor coordination, finger dexterity, and manual dexterity are necessary for rapid handling to position transparencies on viewing table.

Color perception is needed to compare duplicates with original transparencies to ascertain meeting of color standards.

Interests -

A preference for activities dealing with such things and objects as transparencies, brushes, rubber stamps, route cards, film bins, and customer bags. Interest in situations of a routine, concrete, organized nature to inspect and compare transparencies.

Temperaments -

Must adjust to situations involving repetitive and short cycle operations, which include the attainment of prescribed standards to detect defects and match transparencies.

Physical Demands and Working Conditions

Work is sedentary, involving occasional lifting and carrying of film boxes weighing up to 10 pounds.

Constant reaching, handling, and fingering occur during entire checking operation.

Near visual acuity is necessary to examine identification numbers and transparencies. Color vision is required when comparing original and duplicate color prints.



Duplicate Printer placing customer's slide on machine and pressing button to produce number of slides requested.

DUPLICATE PRINTER 976.682

Occupational Definition

Operates duplicate-printing machine to reproduce transparencies (slides): Compares identification numbers on route cards, bins, and film containers to ensure completeness of batch. Reads specifications received with film strip from quality control department, to determine filter pack and control settings required for color balance and density for type of film to be duplicated. Places empty film reel on take-up spindle. Places film on spindle, threads it through machine guides, and attaches end to take-up reel. Installs prescribed filter pack in machine holder, and turns dials and pushes switches to set controls as specified.

Test runs operation by plugging automatic timing device in machine, positions time indicator at starting point, positions test film strip in carrier, and depresses foot pedal to activate printer. Observes timer to ensure specified exposure time is attained, and changes filter pack when adjustment of exposure time is required. Removes timing device from machine after repeated test runs indicate uniform color quality of duplicates will be obtained.

Places customer's transparencies on carrier of machine, depresses foot pedal to actuate duplicating mechanism, and presses button while holding foot pedal down to automatically repeat operation when additional duplicates are requested. Presses button on film magazine to punch holes in film, before and after duplicating transparencies, to serve as identification marks for film processors.

Writes print, batch, and customer identification numbers on sample film strips and in designated locations on film to identify duplicates. Removes customer transparency from carrier. Removes reels of exposed film for further processing. Repeats test runs on receipt of film test strips from quality control department.

Education, Training and Experience

Two years of high school is preferred. Experienced checkers or reprinters are the usual source of recruitment. On-the-job training from one to three months is generally required to learn operation and adjustment of machine and to acquire proficiency and rapidity.

Worker Traits

Aptitudes -

Form perception is necessary to perceive printed data on film containers, bags, and equipment controls.

Motor coordination and finger dexterity are required to prepare machine for operation; handling, inserting and removing transparencies; and operating machine.

Eye-hand-foot coordination is needed to depress foot pedal and press button simultaneously to automatically repeat operation when additional duplicates must be produced.

Interests -

A preference for activities that are nonsocial in nature, and are carried on in relation to processes involving operation of duplicating machine used to reproduce transparencies.

Temperaments -

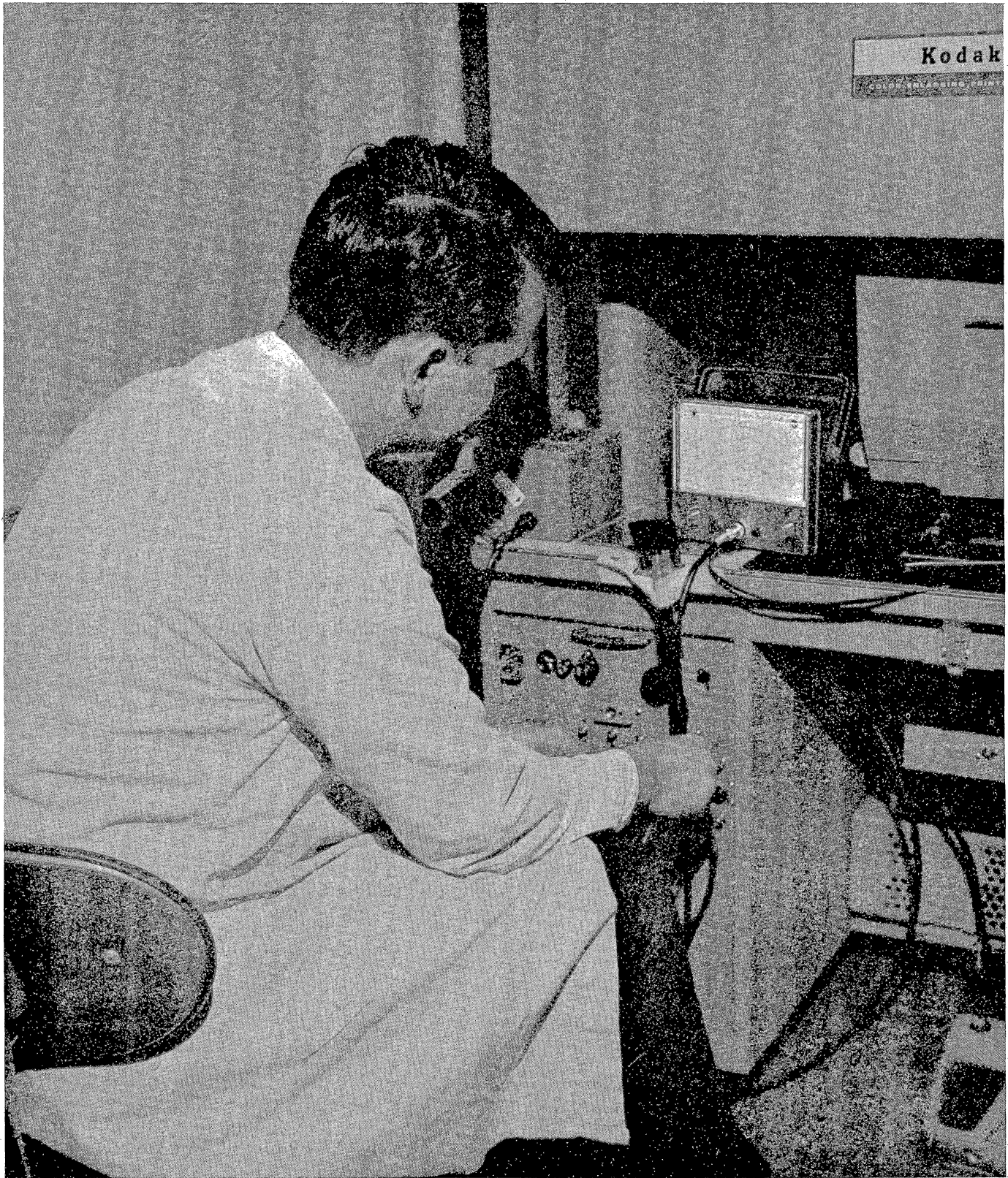
Work situations involve insertion and removal of transparencies from machine in repetitive, short cycle operations carried out by set procedures according to specifications and quality control demands

Physical Demands and Working Conditions

Work is sedentary. Filter packs and film batches, weighing up to 10 pounds, are occasionally lifted and carried by operator. Hard-arm and foot-leg controls are involved when adjusting machine controls and depressing printer foot pedal.

Constant reaching and handling of transparencies, film, machine parts, dials, switches, and filter packs are involved in preparing and operating machine.

Near visual acuity is required for reading specifications. Color vision is necessary for selection of filter packs and identification of film by color coded sealing tape on container.



Electronics Technician observing reading on testing equipment while adjusting color balance in color enlarging printer.

ELECTRONICS TECHNICIAN
828.281

Occupational Definition

Tests, repairs and adjusts electronic photographic equipment, such as printers, film machines, paper processing units, and film and paper cutters, following specification manuals and schematic diagrams, using hand tools and test equipment: Studies or examines quality control reports, test film, and prints, to determine color balance, exposure timing, and slope deficiencies in print machines.

Tests electronic components and circuits for defects, using timing unit, voltmeter or oscilloscope. Plugs testing equipment into machine sockets, and positions test film into negative carrier of print machine. Starts machine and depresses foot pedal repeatedly until specified reading is indicated on test equipment dials.

Adjusts potentiometer knobs and slope and voltage controls on panel board to provide color balance and correct slope and voltage for printing, and removes test equipment when adjustments have been accomplished.

Turns paper advance knob to place paper in print position and depresses foot pedal to obtain prints for testing. Submits printed paper to paper processing operator for black and white or color processing. Inserts test film and paper into specified densitometer to determine photographic color and density. Records reading on plot sheet and compares readings with manufacturer's test specifications to ensure adequate processing results.

Adjusts print machine parts, such as paper mask aperture, numbering device, and print cutting marker, following manual or relying on experience. Observes and listens to machines, such as film and paper processors, dryers, paper and film cutters, and follows schematics or uses test equipment to locate malfunctioning electronic parts.

Splices broken wires and rewires machines, using color coded wires, soldering iron and hand tools, following wiring diagrams. Aligns, adjusts, and calibrates film and paper cutting equipment, according to specifications. Maintains and reviews log of running hours for equipment, services electronic control systems, and lubricates moving parts as preventive maintenance.

Discusses technical problems beyond scope of knowledge with manufacturer's representatives. Schedules repair and maintenance activities so as to prevent or minimize production lag. Keeps manufacturer's manuals current by replacing inserts to keep abreast of changes in equipment, parts, and prices. Prepares reports indicating condition of equipment.

Education, Training and Experience

High school graduation is required, with two years of additional vocational training in electronics. On-the-job training is provided to acquaint worker with various electronic equipment used in the plant; and most employers allow time to provide technical training by equipment manufacturer for teaching worker to make adjustments and repairs.

Worker Traits

Aptitudes -

Verbal ability is involved in reading specification manuals and to prepare reports for management.

Numerical ability is required to add accurately when checking quality control report and maintaining records.

Spatial ability is required when reading schematic diagrams to visualize component parts.

Form perception is needed to examine film and prints to determine color balance, exposure timing, and slope deficiencies.

Clerical perception is necessary to maintain records and prepare reports.

Motor coordination, finger dexterity, and manual dexterity are required to insert film and prints into testing equipment and to test, repair and adjust equipment.

Color perception is used to match wire colors in re-wiring electrical circuits.

Interests -

Work is nonsocial in nature, and is carried on in relation to machines, processes and techniques in activities of a scientific and technical nature in determining color balance, exposure timing, slope deficiencies and other processing requirements.

Temperaments -

Work situations involve a variety of duties characterized by frequent change to test, adjust and repair various types of equipment according to precise standards. The worker must evaluate reports and tests against measurable criteria, such as specification manuals and diagrams.

Physical Demands and Working Conditions

Work is light, involving frequent lifting and carrying of test equipment weighing up to 10 pounds. Worker occasionally pushes and pulls machines and equipment into position for servicing. Hand-arm controls are required to adjust control knobs on various types of equipment.

Worker frequently stoops and crouches while working under machine.

Frequently reaches for, handles and fingers testing equipment, machine parts, tools, film and paper.

Talks with supervisor and manufacturer's representative to discuss need for repairs to equipment and to resolve complex technical problems. Worker listens to equipment to detect malfunctions.

Near visual acuity is required to make repairs. Color vision is needed to match color coded wires.

Worker is subject to possible injury or shock from moving machine parts and electrical equipment.

FILM CUTTER

976.884

chopper; photo-cutting machine operator

Occupational Definition

Cuts negative film strips into single or multiple units, using automatic, semi-automatic or hand cutting machines: Observes strip of negative to determine size. Pulls strip through gloved fingers to detect pinholes and previously marked lines required to activate cutter. Compares twincheck number on strip with customer envelope number to ensure correct match. Turns set screw to adjust guides on cutter to accommodate size of negatives.

Threads film over and under cutter guides and pushes button to start mechanism. Observes strip as pinholes or lines are automatically transported over micro-switch that activates cutters to separate strip into single or multiple units. Pushes button to start semi-automatic machine.

Adjusts guides on cutter, slides strip into machine holder under cutting knives and depresses foot pedal to cut film into single or multiple units. Cuts film strips into individual negatives, using hand operated cutter or scissors if automatic or semi-automatic machines fail to cut. Removes cut negatives and corresponding numbered section from machine catcher. Places negatives in rear pocket of kangaroo bag and numbered section in front pocket, maintaining correct print number sequence.

Education, Training and Experience

Two years of high school is preferred by most employers. Experience as a racker may be required for promotion to this job. A short demonstration is provided for learning to make simple machine adjustments to various types of cutters.

Worker Traits

Aptitudes -

Motor coordination, finger dexterity and manual dexterity are required to thread film through machine, adjust guides on cutter, and assemble customer orders.

Eye-hand-foot coordination is used to depress and release pedal when cutting negative strip into individual prints with semi-automatic cutter.

Interests -

Work activities are routine and organized, nonsocial in nature, and carried out in relation to film cutting processes, machines, and techniques.

Temperaments -

Work involves repetitive, short cycle operations carried out according to set procedures, and adherence to established standards of accuracy when cutting film.

Physical Demands and Working Conditions

Work is light, involving occasional lifting and carrying bags of film strips weighing up to 5 pounds. Foot-leg controls are required to depress and release foot pedal when using semi-automatic cutter to cut film.

Workers must constantly reach for and handle negatives when cutting film strips and assembling customers' orders. Worker frequently fingers and feels film strips to detect pinholes.

Near visual acuity is required to check numbers on prints.



Film Cutter positioning film in machine
to cut strip into multiple units.



Film Inspector examining reel film for defects.

FILM INSPECTOR
969.687
reel film inspector

Occupational Definition

Inspects master reels of film for defects, using hand-operated machine to unwind and rewind reel; Mounts reel of film on spindle of rewinding machine. Threads film through viewer and into slot of takeup reel. Turns rewinder handle to transfer film onto takeup winder, using gloved hand to keep film straight while examining film for such defects as scratches, tears, dust specks or water spots. Wipes dust specks or water spots, using soft cloth, and notifies supervisor regarding scratches and tears. Rewinds film, removes reel and places in tray for delivery to next processing station.

Education, Training and Experience

Two years of high school preferred. Some employers require previous experience as a Print Machine Operator while others consider it an entry job. Up to one month on-the-job training is provided to learn the skill of detecting minute defects in film.

Worker Traits

Aptitudes -

Form perception is needed to perceive defects while winding film.

Motor coordination, finger dexterity, and manual dexterity are required to mount and wind film.

Interests -

Work activities involve an interest in working with things, and preference for situations that are nonsocial in nature and carried on in relation to machines and techniques.

Temperaments -

Inspection of film is a repetitive, short cycle operation carried out according to set procedures. Inspected film must meet established and precise standards.

Physical Demands and Working Conditions

Work is light, involving frequent lifting of film reels

weighing up to 15 pounds, and placing them on machine spindle. Hand-arm control is required to coordinate turning of handle on film winding machine to accomplish inspection of reel film.

Work requires constant reaching, handling, fingering and feeling during entire procedure.

Near visual acuity is necessary to detect small imperfections in film.

FILM ISSUE CHECKER

976.687

Occupational Definition

Fills orders for film and prepares credit slips for return to customer. Selects designated types and quantities of film from storage bins to fill orders for customers, as indicated by attached stickers and notations on order envelopes. Inserts film into envelope, seals flap, prints customer's return address on label if printed label was not included with order, and affixes address labels for mailing.

Marks roll card to indicate type and quantity of film issued, for records control use. Reads notations on film envelope to determine amount of credit due customer. Prepares credit slip, indicating amount and type of credit due, and inserts slip into customer envelope. Seals envelope and places in bin for removal to shipping department.

Education, Training and Experience

Two years of high school preferred. Workers receive on-the-job training of up to one month to learn types and locations of film and to develop speed and accuracy in filling orders. No experience is required for this entry job.

Worker Traits

Aptitudes -

Clerical ability is needed to select designated types and quantities of film, and to prepare credit slips.

Motor coordination, finger and manual dexterity are essential for rapid and effective filling and preparation of orders.

Interests -

A preference for working with things and objects and performing routine, organized activities to select rolls of film from storage bins and to prepare order for shipping to customers.

Temperaments -

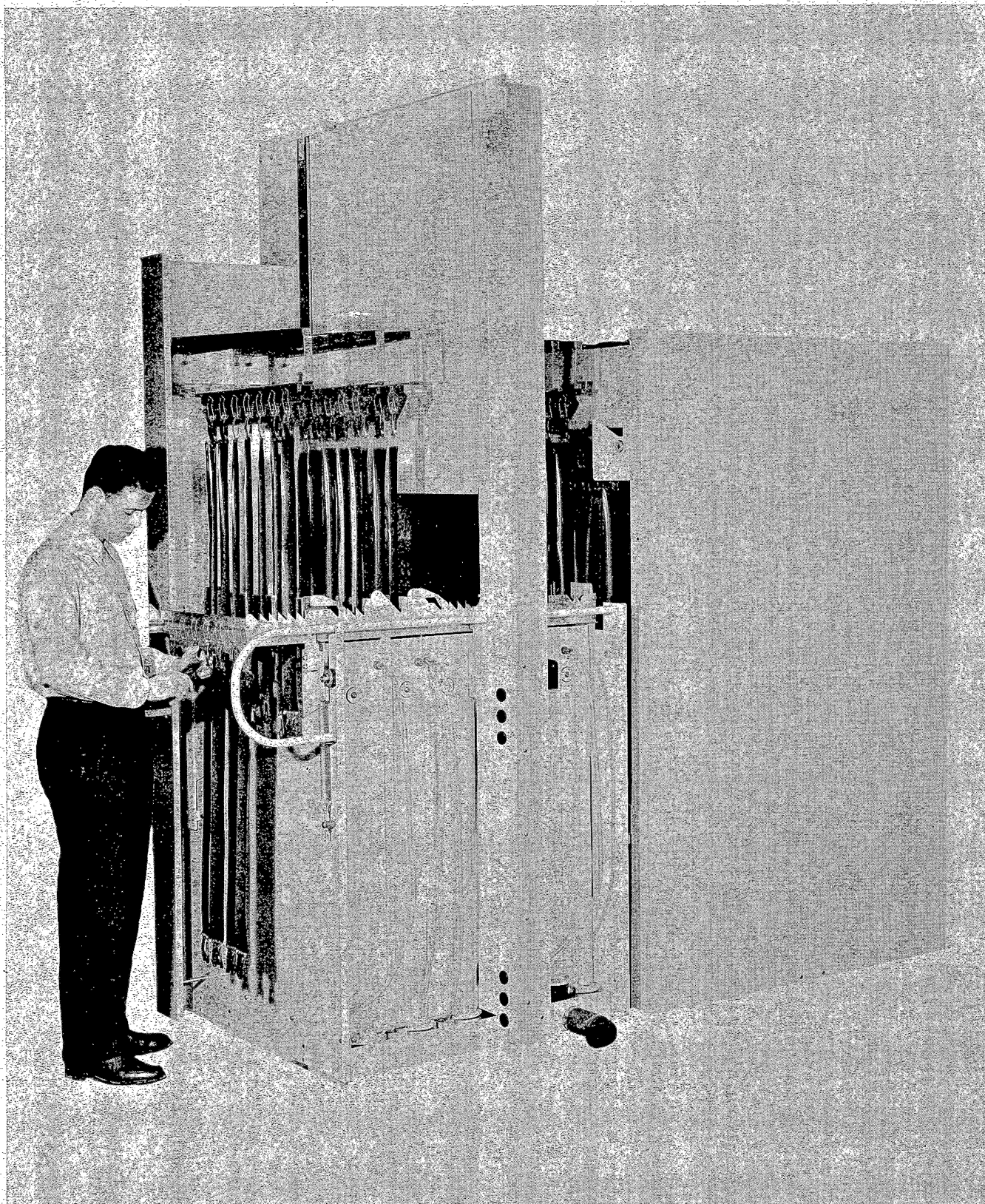
Repetitive tasks are performed under specific instructions with little independent judgment required. Such activities occur in order filling and issuance of credit slips for refunds to customers.

Physical Demands and Working Conditions

Work is light.

Frequent walking and constant reaching, handling, and fingering are involved in selecting and preparing film orders.

Near visual acuity is necessary to read data on film packages and order envelopes. Color vision is required by some employers for rapid identification of roll film containers.



Film Machine Operator stripping film of paper covering and placing film strip under rack clip to load machine in darkroom.

FILM MACHINE OPERATOR
976.885

Occupational Definition

Tends automatic film processing machine in darkroom to develop film strips and sheets: Opens light-trap door, pulls box of racked film into darkroom, and places it on wheeled rack stand near machine to facilitate handling.

Releases film roll from rack spring clip and strips paper backing from film. Pastes twincheck to film end and replaces film under same rack clip. Feels film edge as it unrolls to detect tears, and uses hand stapler to mend breaks. Feels film for size or notches that indicate type of process and developing time required. Fastens weighted clips to hanging end of film to hold strip rigid during processing. Places rack with hanging film on machine chain links at varying distances to control developing time.

Flips switch to start mechanical transporting of film through series of solutions to develop, fix, harden, bleach, wash and/or rinse, as required; and deposits film into cabinet for drying. Listens to operating sound of machine during processing and reports malfunctioning to supervisors. May dip hand into series of tanks to feel for specified levels and ensure complete immersion of film during processing.

Education, Training and Experience

Two years of high school is preferred. Some employers employ blind workers, for whom this would be an entry job, or up-grade sighted workers with racking experience. One month on-the-job training is provided for the worker to learn to identify sizes of film by feel, handle film in manner required, and control developing time.

Worker Traits

Aptitudes -

Spatial aptitude is necessary to distinguish size of film by feel to determine processing time required.

Motor coordination, finger dexterity, and manual dexterity are required to remove, handle, and load film strips.

Interests -

A preference for activities involving things and objects in work situations that are nonsocial in nature and carried on in relation to processes, machines and techniques to prepare film and tend machine for processing.

Temperaments -

Film machine operators work alone in darkroom apart from others. Prescribed limits must be adhered to in placing film on machine chain links according to time required for developing.

Physical Demands and Working Conditions

Work is light, involving lifting and carrying of rack box weighing up to 20 pounds.

Frequent reaching, handling, and feeling are required in performance of duties.

Hearing is involved when worker listens to operating sounds of machines; talking is required to discuss with supervisor processing irregularities and machine malfunctioning.

Skin infections or irritations may result from dipping fingers into tank to check solution levels.

Fumes and odors from chemicals exist, but are not harmful.

Noise emanating from machines in operation makes conversation difficult.



Film Racker clipping rolls
in place on racks.

FILM RACKER

976.887

numbering girl; racker; twincheck loader

Occupational Definition

Sorts orders, affixes twincheck numbers on customer envelopes and film rolls to facilitate regrouping of order items after processing, and loads film on racks or in trays to facilitate handling in darkroom. Empties box or bag containing customer envelopes on work table. Reads notations, feels for contents, or associates color of envelopes, to determine type of film and processing requested, and sorts envelopes accordingly into marked or color-coded bins.

Opens envelopes, using hand cutter, and removes film rolls. Stamps or writes date, type, and size of film on envelope. Sticks twincheck or identifying number on both film rolls and customer envelopes to ensure matching after processing.

Breaks seal on film rolls, clips rolls in place on racks, with twinchecks visible, and loads racks in rack or tote box. Clips envelopes that contained black and white film to top of rack box to facilitate subsequent matching, and routes loaded box to film processing area. Removes envelopes that contained color film, secures with rubberbands and routes to take-down area.

Loads movie and slide film in tray with twincheck visible, and assigns batch number to tray and matching envelope. Places loaded tray on conveyor for removal to darkroom for splicing of film. Bands customer envelopes together and routes to inspection area for matching with processed film. May maintain daily production sheets showing types and number of film rolls racked.

Education, Training and Experience

Two years of high school is preferred. This is an entry job, requiring up to one month of on-the-job training to learn various types, sizes, and colors of film orders.

Worker Traits

Aptitudes -

Form perception is required to distinguish types and sizes of film roll.

Clerical perception is required to write identifying numbers on film and containers.

Motor coordination, finger dexterity, and manual dexterity are required to open envelopes, remove film, affix identifying information, and rack items rapidly and accurately.

Color vision is needed to identify film in customer envelopes by color of envelope.

Interests -

A preference for activities dealing with things and objects and an interest in routine, organized work to sort orders, affix twincheck numbers, and load racks.

Temperaments -

Work involves repetitive and short cycle operations carried out according to set procedures. Identifying and racking tasks are performed under specific instructions with little independent judgment involved.

Physical Demands and Working Conditions

Work is light and occasionally requires worker to lift and carry rack box weighing up to 20 pounds.

Constant reaching, handling, finering and feeling are involved in opening envelopes, identifying contents of envelopes, and removing, identifying, and racking film.

Color vision is needed to identify type of film by color of envelope, and near visual acuity is required to read customer instructions on film envelopes or containers.

FILM SORTER, MAIL ORDER
976.687
sorter-utility, mail order

Occupational Definition

Sorts incoming mail order films according to services requested, routes them to appropriate processing sections and departments, and reassembles completed orders for mailing to customers. Carries bags of mail from receiving station and empties film orders on work table. Reads notations on order envelopes indicating pre-paid, money enclosed, or certificates and coupons enclosed. Sorts orders into bins for distribution to pre-paid, validating, and customer service stations.

Delivers loaded bins to designated work section for processing. Collects work ready for film or print processing and delivers to pick-up station. Tours departments to observe work bench areas, or responds to request from workers for supplies such as film bags, rubber bands, cutters and containers from storeroom. Sorts bins of finished work matches prints and negatives to customers' order envelopes, and assembles completed orders to ensure return of prints and negatives.

Education, Training and Experience

Two years of high school is preferred. One month of on-the-job training is required to acquaint worker with sorting and distribution routine, types of film orders received and processing required, and types of supplies used in various operations. No previous experience is required for this entry job.

Worker Traits

Aptitudes -

Finger and manual dexterity are required to sort orders from mail bags into designated bins and to pack negatives and reprints into order envelopes for return to customers.

Interests -

A preference for working with things and objects to sort orders, prints and negatives, and replenish operators' supplies. An interest in activities that are routine and organized.

Temperaments -

Tasks are repetitive and performed under specific instructions with little independent judgment required.

Physical Demands and Working Conditions

Work is medium, involving lifting and carrying of bins, boxes and bags of mail weighing up to 30 pounds.

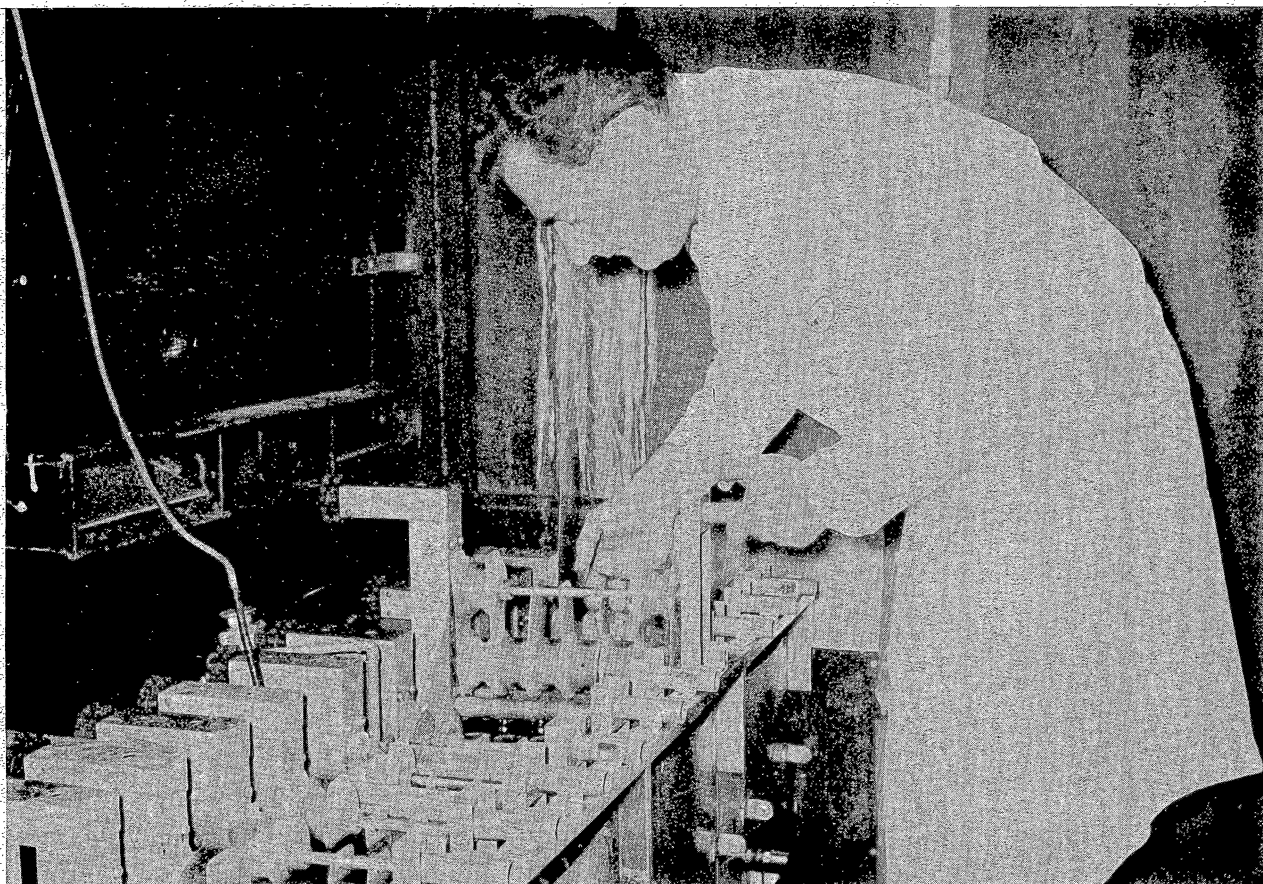
Frequent walking, reaching, handling, fingering and feeling are involved in performance of tasks.

Occasional talking and hearing occur in communicating with operators and listening for their signals.

Near visual acuity is required to match prints and negatives in completed orders and to read notations on order envelopes for sorting.



Film Sorter reading notations on order envelopes for sorting according to services requested.



Maintenance Man removing film rack and rollers
from continuous film processing machine for repairs.

MAINTENANCE MAN
899.281
maintenance mechanic

Occupational Definition

Repairs, maintains, and installs machines and equipment, and keeps physical structure of plant in good repair, using hand and power tools and following manual specifications, blueprints, and diagrams; Adjusts temperature and humidity controls as specified to maintain consistent conditions in plant to safeguard paper, film, and chemical solutions against damage.

Repairs or replaces malfunctioning parts of film and paper processing machinery such as compressors, pumps, replenishing valves, filters, film racks and rollers. Dismantles machinery to gain access to, and repair faulty parts. Splices color coded wires and tightens loose electrical connections. Changes filter cartridges to assure clean wash water and chemical solutions. Tightens valve and hose connection to prevent loss of chemical solutions.

Installs new machinery and equipment, using hand or power tools, following manual specifications, blueprints or diagrams, and instructions from supervisor. Test runs machinery and adjusts connections to ensure completeness of installation. Lubricates moving parts on film and print processing machines using grease gun and oil can.

Constructs wooden structures such as sorting bins, tables, and counters, darkwall partitions and darkroom printing booths, using carpentry tools. Fabricates and repairs metal equipment such as shelves, platforms for solution tanks, film rack box stands, film hanger holders, and sorting carts, using rivets, riveting gun, bolts, nuts, and hand tools. Replaces fuses, signal light bulbs, fluorescent tubes, and broken switches.

May consult with manufacturer when requisitioning new or replacement parts. May tend equipment that automatically recovers silver deposits from hypo solution; and may record weight of silver recovered. May compute labor and material costs for repair jobs.

Education, Training and Experience

Employer hiring requirements range from two years of high school to high school or vocational school graduation with courses in carpentry preferred. Three to six months on-the-job training is provided to familiarize worker with equipment and physical structures to be maintained, and operation of temperature and humidity control systems. Previous experience in general maintenance work is usually required.

Worker Traits

Aptitudes -

Verbal ability is needed for reading manual specifications, following instructions from supervisor, and consulting with manufacturers.

Numerical ability is required when measuring parts or areas to construct wooden or metal structures or install equipment.

Spatial ability is necessary to construct, install and dismantle equipment and visualize relationship of component parts while following blueprints and diagrams.

Motor coordination, finger dexterity, and manual dexterity are required to install, repair and replace parts, machinery and equipment, using hand and power tools.

Color perception is needed to match color coded wires when making electrical connections.

Interests -

A preference for activities involving things and objects in work situations that are nonsocial in nature and carried on in relation to installations, repair and maintenance of machines and equipment.

Temperaments -

Work situations involve a variety of duties characterized by frequent change to install, repair and replace various parts for equipment and machinery according to precise standards. The worker must evaluate installation of machinery and equipment against measurable criteria, such as manual specifications, blueprints or diagrams.

Physical Demands and Working Conditions

Work is heavy, involving frequent lifting and carrying of machine parts and equipment weighing up to 100 pounds. Worker frequently pushes and pulls machines and equipment into position for servicing. Hand-arm controls are required to adjust temperature and humidity systems.

Occasionally worker climbs ladder to repair parts located on top of machines, and to replace light bulbs and lighting fixtures.

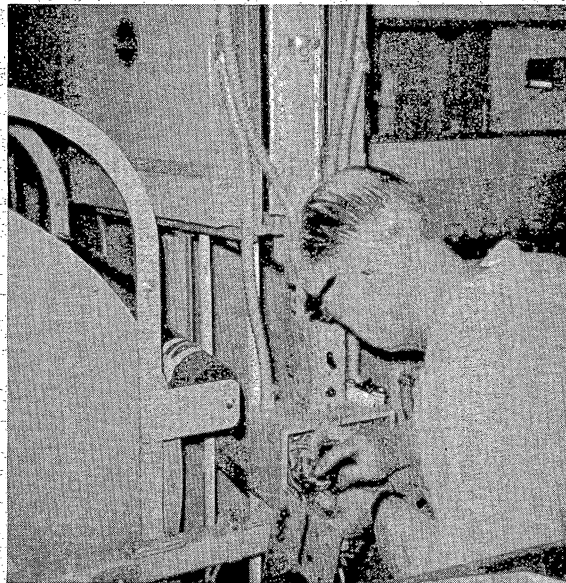
Worker frequently stoops, kneels, crouches and crawls while working with machines.

Worker frequently reaches for, handles, and fingers replacement parts, controls, tools and specifications.

Worker occasionally talks to supervisor or manufacturer concerning need for repair or replacement of equipment.

Near visual acuity is required to read diagrams, blueprints and specifications. Depth perception is required to replace parts and install new equipment. Color vision is needed to match color coded wires.

Worker is subject to possible injury or shock from moving machine parts and electrical equipment.



Maintenance Man tightening loose electrical connection.

MOUNTER, AUTOMATIC
976.885
slide mounter; transparency mounter

Occupational Definition

Tends automatic mounting machine to insert and seal transparencies in mounts: Loads specified number of empty mounts into mounting machine post-holder and depresses hand lever to lock them in place. Snaps film reel onto machine spindle. Observes first twincheck number on film reel and customer envelope to ascertain agreement. Removes twincheck from film reel, affixes it to matching envelope, and drops envelope into hopper.

Trims end of film, using scissors, and threads into film feeder. Depresses button to advance film under cutter head to trim excess and cut film to fit mount. Starts blower to remove cuttings. Depresses second button to actuate mechanism that automatically releases mount from holder, advances mount and film simultaneously under hot-head for sealing, and dumps mounted film into hopper with matching envelope.

Observes movement of film and mounts, and notifies supervisor regarding machine malfunctioning. Loosens and tightens set screws and adjusts film and mount guides as instructed by Mount Inspector. May maintain daily production sheet. May review price list and write price of mounting on customer envelope.

Education, Training and Experience

Two years of high school is generally preferred. No previous experience is required for this entry job. On-the-job training up to one week is sufficient for proficiency.

Worker Traits

Aptitudes -

Motor coordination, finger dexterity, and manual dexterity are required to load machine holder, trim and thread film ends, depress buttons to actuate machine mechanisms, and adjust guides rapidly and accurately.

Interests -

A preference for working with things in a routine and organized manner to load mounts and thread film preparatory to mounting. Interest in performing uninvolved tasks to continuously prepare and tend machines.

Temperaments -

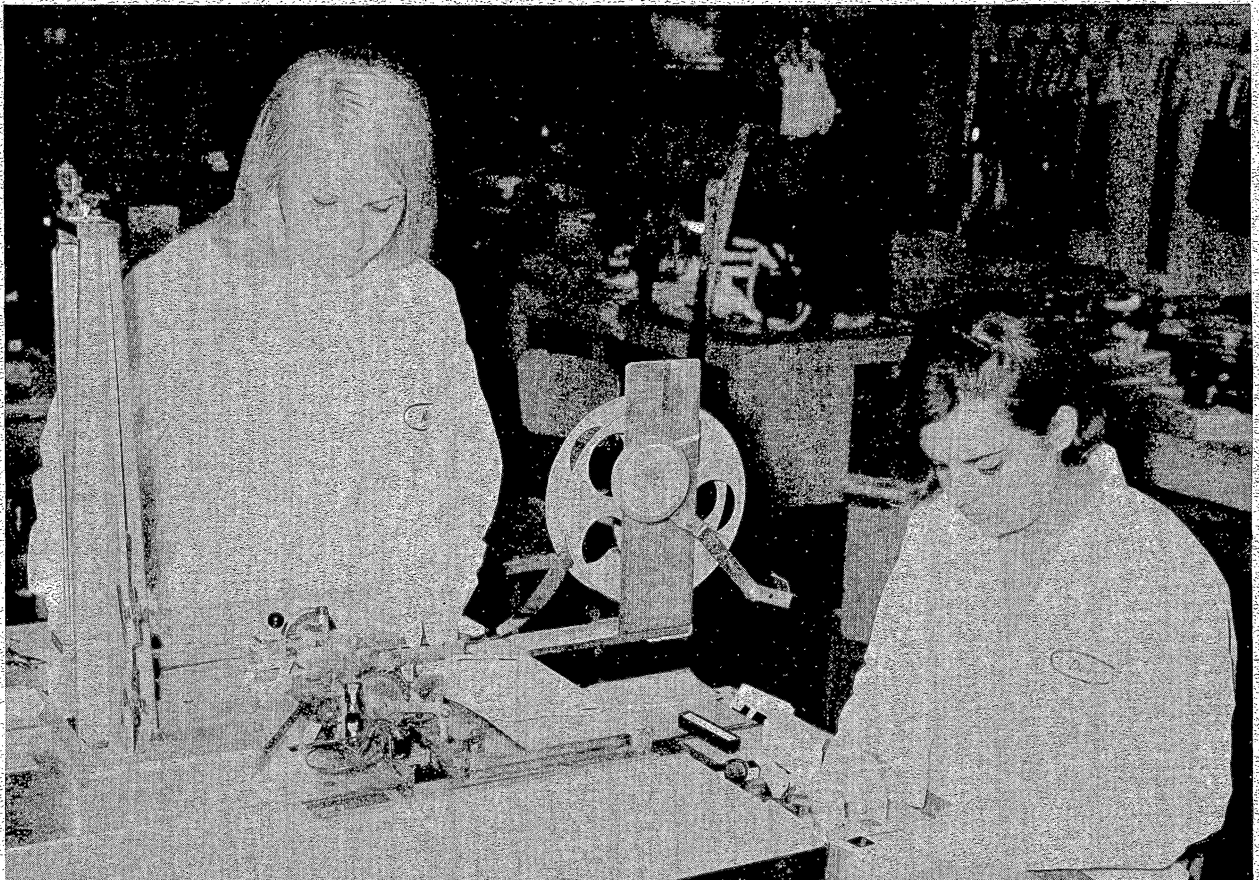
Work activities are repetitive in nature and performed under specific instructions with no independent action required.

Physical Demands and Working Conditions

Work is light. Hand controls are required to push buttons that control the movements of the mounting machine.

Reaching, handling, and fingering are needed to load mounts, handle customer envelopes and twinchecks, mount reel onto spindle, trim film end and insert into feeder, and adjust guides.

Near visual acuity is required to adjust film guides and insert film into automatic film feeder.



Mounter threading film into automatic machine to cut and seal slides, and inspector examining finished mounts for centering and effective sealing.

MOUNTER, HAND
976.884
mounter

Occupational Definition

Mounts developed film transparencies for handling convenience, using cutter and mounting press: Places film roll onto cutter spindle and threads end into rack or along track in front of lighted screen, and under cutter knives. Inspects film for defects, such as blank or black film and double exposures. Aligns printed line separating exposures with cutter knives, and uses hand or foot-operated cutter to cut film strip into individual transparencies.

Inserts transparencies into mounts manually, and places in mounting press for heat-sealing. Presses button alternately to activate mechanism that lowers hot-head on mount and seals in transparencies, and releases mechanism to raise head. Removes sealed mounts manually if press is not equipped with automatic ejector, and places in bin with matching bag for inspection. May keep daily production record.

Education, Training and Experience

Two years of high school preferred. This is an entry job requiring no previous experience. Workers are given on-the-job training up to one week to learn cutting and sealing procedures.

Worker Traits

Aptitudes -

Form perception is required for accuracy in cutting and centering operations, and to detect defects in transparencies.

Motor coordination, eye-hand-foot coordination, finger dexterity, and manual dexterity are needed to thread, cut, insert, and seal transparencies.

Interests -

A preference for activities dealing with such things and objects as film strips, cut transparencies, mounts, and customer envelopes. Work is nonsocial in nature and is carried on with relation to machines, procedures and techniques involved with cutting film strips into individual transparencies, insertion into mounts, and heat-sealing of mounted transparencies.

Temperaments -

Performs tasks in accordance with specific and unin-
volved instructions allowing little room for independ-
ent judgment, and adheres to prescribed limits when
cutting and mounting transparencies.

Physical Demands and Working Conditions

Work is light, involving hand-arm or foot-leg controls to
actuate cutting and sealing mechanisms.

Worker constantly reaches for, handles, and fingers film
strips, mounts, machine controls and customer envelopes.

Near visual acuity is necessary for inserting and
centering individual transparencies in mounts.

Worker must be alert to prevent burns from mounting press.



Mounter placing mount into press for heat sealing after manual
cutting and inserting of slide in mount.

ORDER FILLER
922.887
order picker

Occupational Definition

Selects photographic equipment and supplies from stock to fill orders according to customer's invoice: Reads invoice, selects items from shelves and assembles on packing table. Notifies customer regarding unavailable supplies, suggests substitutes, and changes order to ensure correct billing. Wraps, bags, or packs merchandise according to type or quantity requested, using staples, twine or tape. Attaches order form to order with staples.

Prepares and pastes gummed address label to container, and carries completed order to delivery pick-up area. Counts merchandise and supplies on hand and records totals on inventory forms. May submit inventory records to accounting department.

Education, Training and Experience

Completion of two years of high school is preferred. Six weeks' training on-the-job is given to learn various items, stock locations, and order assembly procedure. This is an entry job, requiring no previous experience.

Worker Traits

Aptitudes -

Numerical ability is needed to count merchandise in stock and prepare inventory forms.

Clerical ability is necessary to discern verbal and tabular information on order forms and merchandise containers.

Motor coordination and manual dexterity are required for rapid and accurate selection of items from bins and insertion into bags for shipment.

Color discrimination is needed for recognition of film packages by color coding.

Interests -

A preference for routine, organized activities involving handling of such things as film and photographic supplies to fill customer orders for specified items.

Temperaments -

Worker performs repetitive tasks under specific instructions to select items and prepare customer orders for shipment.

Physical Demands and Working Conditions

Work is medium, involving frequent lifting and carrying of cartons of supplies, weighing up to 50 pounds.

Worker frequently reaches for and handles merchandise during performance of duties.

Near visual acuity is required to read data on order form and recognize types of film by package legend. Color vision is required to recognize film by package color.



Packager sealing box with tape after assembling and checking contents.

PACKAGER
920.887
packer

Occupational Definition

Assembles and packs completed film orders and requested photographic equipment and supplies to prepare them for shipment to customers; Counts number of packaged units contained in order, and compares them with number listed on work sheet or customer envelope to ensure inclusion of all items. Selects packing carton, box or bag, according to size of order, and inserts advertising material to encourage repeat orders.

Wraps or packs assembled orders and seals containers, using wrapping paper, sealing tape, staples, or cord to prevent contents from falling out during transit. Types or prints addresses on mailing labels and affixes to containers for shipping, or marks customer's identification on orders for pick up by routemen or customer. Notifies supervisor regarding missing film or other items in order or returns incomplete orders to designated departments.

May pick up missing items, such as enlargements, from specified department to complete order. May maintain daily record of prints framed. May maintain record of orders prepared for shipping.

Education, Training and Experience

Educational requirements range from grammar school to two years of high school. Employers generally consider this an entry job, and on-the-job training ranges from one week to one month for familiarization with various items and packaging procedures.

Worker Traits

Aptitudes -

Form perception is required to wrap, package, and prepare shipments of photographic items.

Motor coordination, finger dexterity, and manual dexterity are required for handling and packing of photographic items and preparation of shipping containers for orders.

Interests -

Preference for working with things and objects in routine and organized activities to assemble, wrap,

and pack customer film orders in containers for shipment and to route packages for customer pickup or dealer-route delivery.

Temperaments -

Situations involve repetitive activities requiring little independent action to prepare address labels and pack customers' orders in containers for shipment in accordance with specific instructions.

Physical Demands and Working Conditions

Work is light, involving frequent reaching, handling and fingering of photographic film and prints in assembling and packing of orders.

Near visual acuity is required to read data on invoices and order bags, and names printed on items. Depth perception is required to pack items in cartons. Color vision is required when film orders and customer envelopes are identified by container or color stripe coding.



Full-Roll Inspector examining prints as they come off the drying drum.

PHOTO CHECKER AND ASSEMBLER
976.687
checker; finisher; proofer

Occupational Definition

Inspects, prices, and assembles completed photographic orders including such items as framed and unframed prints and enlargements, negatives and slides: Matches print and twincheck numbers on customer envelope with numbers on prints and negatives, places missorts aside until missing items are located, or routes entire order to Inspection Section for corrective action. Reads notations on envelope and checks contents to ensure adherence to instructions and merchandise requests.

Positions prints under light on viewing table and examines for density, color shading, sharpness of image, and scratches, using standard test print for comparison. Writes instructions for corrections on prints, using crayon and standard symbols.

Counts number of acceptable prints. Selects corresponding price stamp and stamps price on face of envelope, or calculates price for special orders and writes price on envelope. Circles number on reprint coupon indicating credit due for blank negatives. Routes prints for framing and completed orders for packing. May maintain daily production records.

May package and label completed orders. May cut negatives and prints from roll, using cutting machine. May inspect prints for tears, dirt, scum, or other surface defects preparatory to mounting, and be designated Take-Down Inspector. May be designated according to type of print inspected, as Color Print Inspector, Full-Roll Inspector, Mounting Inspector, Reversal-Print Inspector.

Education, Training and Experience

Two years of high school preferred. Experienced packers are usually considered for this job. One to three months' training on-the-job is provided according to worker's experience.

Worker Traits

Attitudes -

Numerical ability is required to count orders and calculate prices.

Form perception is required to discern defects in prints and indicate corrective measures.

Motor coordination and finger dexterity are required to handle and examine photographic items.

Color perception is required to detect color shading discrepancies in prints.

Interests -

A preference for activities involving things and objects and an interest in work situations of a routine nature are required to inspect, price, and assemble various photographic items in customer orders.

Temperaments -

Worker must use sensory or judgmental criteria to determine corrections required to produce quality prints, based on detection of discrepancies and comparison with standard print.

Physical Demands and Working Conditions

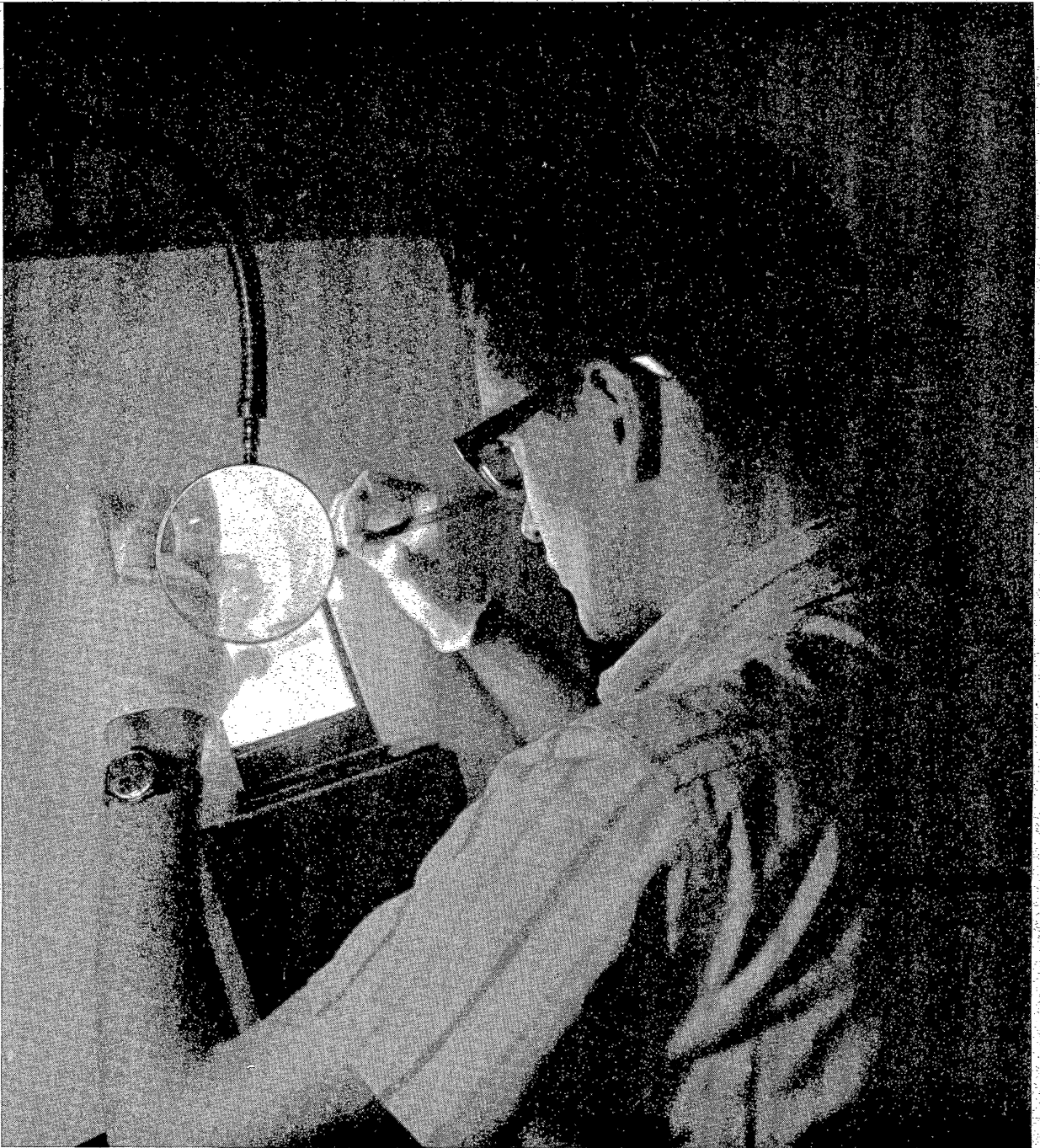
Work is sedentary.

Continuous reaching, handling and fingering is involved in performance of all tasks.

Near visual acuity is required to discern forms and shapes in negatives. Color vision is necessary to detect discrepancies in color shadings and to indicate corrections.

Photo Checker and Assembler
inspecting prints prior
to pricing and assembling
of completed orders.





Photograph Retoucher using pencil to shade negative and smooth facial contour.

PHOTOGRAPH RETOUCHER

970.281

negative retoucher; photograph finisher; retoucher

Occupational Definition

Retouches photographic negatives and prints to remove or disguise imperfections and accentuate desirable features of subject, using pencils, brushes, dyes, water colors, etching knife, and erasers: Reads instructions on negative jacket, removes negative, and places it on lighted table for examination.

Examines forms, highlights and shadows in negative, using magnifying glass, to determine which features to accent or minimize. Brushes or swabs negative with retouch fluid so that retouching pencil will mark surface of negative. Fills in pinholes, covers defective areas, and shades negative with pencil to smooth facial contours, conceal stray hairs, wrinkles, or blemishes, and soften harsh highlights. Scrapes dense areas of negative with parallel and angular strokes of etching knife to remove coating and lighten area.

Dips brush into dye solution and applies to large defective areas until blended with surrounding areas of negative. Wipes excess dye from surface and sets negative aside to dry. Matches retouched negatives with corresponding jackets and places them in container for removal. Brushes water colors on print to accentuate lights and shadows and produce clear and attractive features. May maintain daily production sheet.

Education, Training and Experience

High school graduation with courses in art is preferred; however, non-graduates with art background are considered for employment. Employers generally consider this an entry job and workers selected receive up to three months of training on-the-job to learn use and application of artists' tools and materials and coloring techniques to create desired effects.

Worker Traits

Aptitudes -

Verbal ability is required to read instructions on negative jackets.

Spatial ability is needed to visualize how the finished photograph will look.

Form perception is necessary to discern forms, details,

and imperfections in negatives, and to color or correct them accordingly.

Motor coordination and finger dexterity are required to use artists' tools and apply materials accurately.

Color discrimination is essential for determination and application of colors and shades.

Interests -

A preference for activities of a creative nature resulting in tangible, productive satisfaction to produce attractive photographs of acceptable quality.

Temperaments -

Work situations involve coloring and corrective operations evaluated against sensory and judgmental criteria, and attainment of prescribed standards to accomplish work according to instructions.

Physical Demands and Working Conditions

Work is sedentary.

Worker frequently reaches for, handles, and fingers negatives, brushes, pencils, etching knife and other tools and materials during coloring or correcting process; and feels negatives to ascertain dryness.

Near visual acuity is required to examine and retouch negatives and color photographs.

PLANT SEARCH CLERK

249.387

search clerk

Occupational Definition

Searches for missing items by examining unidentified prints and negatives, daily route cards, and production sheets to complete customer orders. Reads tracer cards and telephone sheets to learn description of missing items. Searches through unidentified-print file and examines prints for details corresponding to description. Studies dated route cards and production sheets to determine progression and individual processing operation required for missing items.

Visits departments in which items were due for specific processing, and searches through box containing unidentified prints and film. Returns located items to customer service operator to expedite orders. Delivers unfinished film or prints to appropriate departments for such processing as reprinting, enlarging, or duplicating. Maintains file of unidentified prints by size, type, and date to facilitate location and identification of missing items. Purges file at specified intervals.

Education, Training and Experience

Two years of high school preferred. Workers with sorting experience are generally considered for this job. Up to one month of training is given on-the-job.

Worker Traits

Aptitudes -

Clerical ability is required to maintain files in chronological order for accessibility of unidentified prints and negatives by type, size and date.

Form perception is necessary to compare images on negatives and unidentified prints to locate matching pairs of items.

Finger and manual dexterity are required to handle and file negatives and prints rapidly and accurately.

Color vision is needed to identify color shadings and objects on unidentified prints when comparing with negatives.

Interests -

A preference for activities involving searching for and comparing things and objects. Interest in activities of an organized nature to maintain a file systematically.

Temperaments -

Evaluates information against sensory or verifiable criteria to examine unidentified prints according to description of details, or to match prints with customer negatives.

Physical Demands and Working Conditions

Work is light, involving frequent walking about plant and standing at print files and other locations.

Constant reaching, handling, and fingering are required while searching for missing prints.

Near visual acuity is needed to discern figures and objects on negatives when comparing them with prints to find corresponding sets. Color vision is required for identification of colored prints.



Plant Search Clerk examining negatives and prints to locate items missing from customer order.

PRINT DEVELOPER, MACHINE

976.885

darkroom man, paper; hypo splasher; print developer; processor operator; splicer

Occupational Definition

Tends paper processing machines that automatically develop, fix, wash and dry photographic prints: Turns valves to fill tanks to specified level with chemical solutions such as developers, fixers, and water baths. Adjusts valves according to gage readings to regulate continuous flow of chemicals and to maintain level required for coverage of paper during processing. Observes gages on control panel to ensure that prescribed temperatures are maintained, and notifies foreman regarding irregularities.

Threads leader through guides onto drying drum and take-up spool. Splices roll end of printed photographic paper to leader, using splicing paper and heating irons. Starts machine to effect transporting of photographic paper through solutions such as developers, fixers, and water baths, and onto drying drum and take-up spool. Feels edges of paper for rips as it unrolls, and uses tape or stapler to mend tears to ensure continuous running of paper through solutions.

Adjusts valves to drain specified chemicals into reclaim lines, and used solutions into disposal drain. Fills and flushes tanks with water and cleaning acids, and uses brush to remove burrs from tanks and rollers. May be designated according to type of paper processed, as Paper Processor, Color; Paper Processor, Black and White.

Education, Training and Experience

Educational requirements vary from two years of high school to high school graduation with some chemistry background. Workers with printing or racking experience usually receive training up to three months on-the-job to learn to distinguish size of paper by feel, to splice ends of paper roll, and prepare and tend machines under darkroom conditions.

Worker Traits

Aptitudes -

Form perception is required to thread paper leaders through machine guides, to splice rolls to leader, and splice torn prints with paper tape.

Motor coordination, finger dexterity, and manual dexterity are needed to adjust valves, splice paper

rolls and torn prints, and to mend tears.

Interests -

Work activities involve dealing with such things and objects as stapler, tape, paper rolls, and spools. Work situations are nonsocial in nature, and are carried on in relation to processes, machines and techniques.

Temperaments -

Work activities are short cycle in nature, carried out according to set procedures, to thread and splice paper and tend machines.

Physical Demands and Working Conditions

Work is light, involving lifting and carrying paper rolls weighing up to 10 pounds.

Frequent reaching, handling, fingering, and feeling is involved when handling rolls of printed paper and loading machine.

Accommodation of vision is required to develop prints under semi-dark or darkroom conditions.

Worker is exposed to fumes, odors and skin irritations from chemicals, and noise from machines.

PROOF SORTER
976.687

Occupational Definition

Matches negatives with proofs, files negatives and packs proofs for shipment to customer, and assembles returned proofs and negatives for processing; Compares proof with negative image to ensure matching of items. Places proof under head of automatic stamping machine and depresses foot pedal to imprint identification number on reverse side.

Selects folder of appropriate size to accommodate negative for filing, and imprints identical number on folder for subsequent matching. Sorts proofs according to customer identification numbers, places batched proofs into container, and tapes order card to container for identification and shipment to customer. Inserts negatives into folders and files folders numerically in cabinet to await return of customer's proof selections.

Sorts returned proofs in numerical order, and removes matching-numbered folder from file. Removes negatives from folder and matches with proofs. Reads customer instructions and routes order for retouching or finishing.

Maintains daily production record to indicate number of negatives received and filed, and number of proofs mailed to customer.

Education, Training and Experience

Minimum of two years' high school preferred. No previous experience is necessary for this entry job. One month of training on-the-job is usually required to learn to match, sort, and/or file negatives and proofs.

Worker Traits

Aptitudes -

Form perception is necessary to observe details in proofs and negatives when comparing for matching purposes.

Clerical perception is required for checking numbers imprinted on negative folders and filing in prescribed sequence; and for matching file folder numbers with proof numbers.

Finger dexterity and manual dexterity are required to handle proofs and negatives when matching or filing.

Eye-hand-foot coordination is required for depressing pedal to imprint identical number on proofs and negative folders.

Interests -

A preference for activities involving handling of things and objects such as proofs, negatives, order cards, containers, and file folders. An interest in situations that are routine and organized and involve matching customer's proofs with negative folders.

Temperaments -

Work involves repetitive, short cycle tasks performed under specific instructions with little independent action required to match, stamp, file, pack and assemble proofs or negatives.

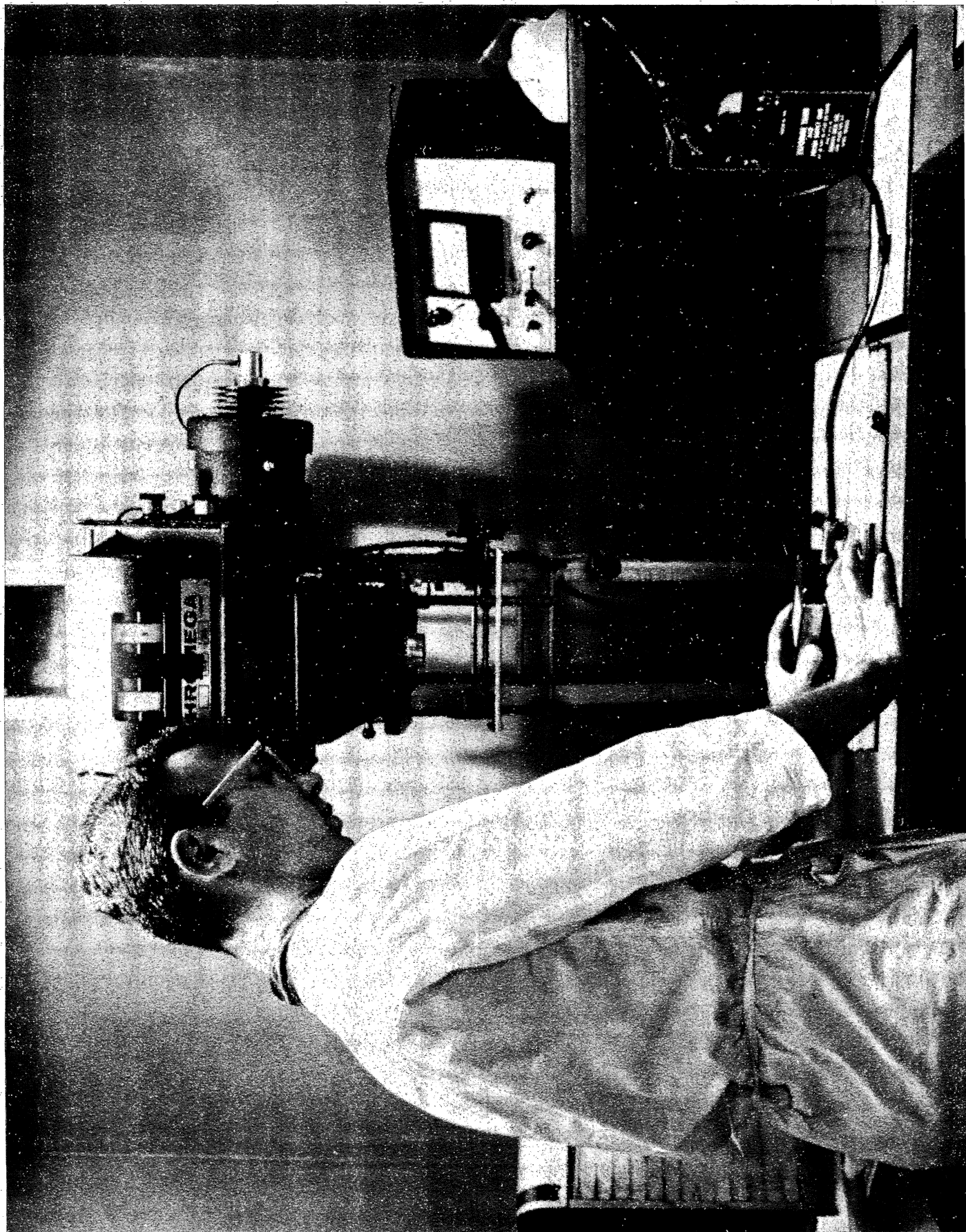
Physical Demands and Working Conditions

Work is light, involving frequent lifting and carrying of batches of proofs and negatives weighing up to five pounds. Foot-leg controls are required to depress pedal to actuate automatic number stamps.

Occasional stooping is necessary for search through file drawers to locate numbered negative folders.

Worker reaches for and handles negatives, folders, and proofs during performance of duties.

Near visual acuity is required to match items, locate orders in file, and read markings and numbers on negative folders and proofs.



Projection Printer pushing button on exposure timer
to set machine for printing of negatives.

PROJECTION PRINTER

976.381

enlarger technician; photograph enlarger;
projection-camera operator

Occupational Definition

Makes enlarged or reduced photographic prints from original negatives using projection printer; Sorts orders according to type and size of film and projection requirements. Removes negative from customer order and stamps identifying number on envelope to ensure match with print after developing. Examines negative for contrast to determine density and shading requirements. Stamps identifying print number on selected paper, using hand operated numbering device.

Places paper in frame, adjusts sliding arms of frame to outline printing area on paper, and slides frame into slots in machine head to hold it during printing. Turns knobs to adjust lens opening and raises or lowers carriage of printer to focus image within outlined area on paper. Inserts timer plug into enlarger socket, turns dial to set exposure time according to density and shading requirements, and starts machine.

Pushes button on exposure timer and listens for timer bell signaling automatic setting of machine to print negatives. Removes timer plug and inserts foot pedal plug to achieve quantity production. Inserts each negative into holder and slides holder into machine. Depresses and releases pedal to produce prints in quantities. Varies contrast in prints by movement of hands over negative to concentrate or deflect light, so as to effect shading of specific area. Covers designated areas on negative, using cardboard for blocking, to produce cropped prints. Removes print from machine after each exposure, and places it in appropriate bag to avoid damage from light. Drops prints into tray containing developer solution to start developing operation, and moves prints around, by hand or using tongs, until images are clear. Removes prints from solution and immerses in stop-bath to arrest developer action (Developer).

May compare prints with negatives or standard prints to ascertain similarity of colors and shades. May write correction symbols on reverse side of prints if spotting or reprinting is needed. May clean negatives, using negative cleaner and cloth, to remove scratches and dust specks. May place enlargements on lighted table to view picture characteristics, and correct defective areas. May count number of enlargements in customer's order and compute, stamp, or write price on envelope.

Education, Training and Experience

Two years of high school is the minimum educational requirement. Printing experience is usually a prerequisite for

promotion to this job. One to three months of on-the-job training is provided to teach worker techniques for coloring and shading prints, and principles of print machine operations.

Worker Traits

Aptitudes -

Form perception is required to view negatives for size, printing density and shading requirements.

Motor coordination, finger dexterity, and manual dexterity are needed to fit paper into machine and adjust controls.

Eye-hand-foot coordination is required to depress and release foot pedal to produce prints in quantity.

Interests -

A preference for activities dealing with things and objects such as negatives, prints and envelopes; and an interest in activities that are nonsocial in nature and are carried on in relation to enlarging processes, printing machines, and retouching techniques.

Temperaments -

Situations involve a variety of duties characterized by frequent change to sort, print and develop film. An evaluation of negatives and prints is required to determine the need for reprint or retouch, utilizing sensory or judgmental criteria.

Physical Demands and Working Conditions

Work is sedentary, involving hand-arm movement to push control knobs, and to raise or lower lever which adjusts lens to desired focus. Foot-leg controls are required to depress foot pedal for printing pictures.

Worker constantly reaches for, handles, and fingers negatives, paper, paint brushes, pencils, envelopes, machine controls and attachments, tape, and cardboard.

Near visual acuity is required to observe differences in forms and shades. Visual accommodation is needed to adjust from working in dark to working in lighted areas. Color vision is necessary to effect color corrections and produce color prints.

REEL FILM INSPECTOR

976.382

projectionist

Occupational Definition

Operates motion picture projector to inspect film reels for defects, and measures film width to determine need for repairing or making adjustments in slitting operation; Selects specified number of reels at random from first cut-up production reel. Threads first reel through projector parts, and attaches film end to take-up reel. Starts projector and adjusts lens to focus film image on screen. Inspects running film for underexposure or overexposure, color density, scratches, shading, and foreign matter.

Notes findings on quality control sheet, stops projector, and rewinds and removes reel. Measures film width, using gage, and notifies Slitting Department head if film does not conform to prescribed tolerances. Repeats entire process with remaining reels.

Education, Training and Experience

Minimum of two years of high school is acceptable to most employers. Selection generally includes workers with printing or inspection experience. On-the-job training up to one month is required for proficient operation of projector and application of inspection techniques.

Worker Traits

Aptitudes -

Form perception is needed to examine film for defects.

Clerical perception is necessary to record film defects on quality control sheet.

Motor coordination, finger dexterity, and manual dexterity are required to handle and thread film through projector to determine defects, so that processing or slitting corrections can be made quickly.

Color perception is required to examine film for color density.

Interests -

A preference for activities dealing with such things and objects as film, reels, quality control sheets,

and gages. Interests involve situations that are nonsocial in nature and are carried on with relation to operating a projector, and the inspection of film.

Temperaments -

Work situations involve evaluating conformance of film to prescribed tolerances against sensory or judgmental criteria, and against measurable or verifiable criteria.

Physical Demands and Working Conditions

Work is light, involving occasional lifting and carrying of bins of film weighing up to 12 pounds. Hand-arm controls are used to operate projector.

Worker constantly reaches for, handles and fingers film.

Near visual acuity, color vision, and field of vision are required to detect flaws in film.

REPRINT SORTER
976.687
copy and reprint sorter

Occupational Definition

Sorts customer envelopes containing requests for reprints according to size, type, and finishing requirements. Stamps customer envelope, using automatic stamping machine, to indicate time and day received, and to provide record of service. Separates orders marked for priority handling.

Opens customer envelope, removes contents, sorts film and reads instructions to determine type of processing required. Marks or stamps envelopes to indicate number of credit coupons enclosed, and destroys coupons. Cleans negatives, using cloth, brush, and cleaning agents. Writes finishing instructions for printing on transfer envelope when more than one type of work is requested by customer.

Places envelope with negative in designated bins for pick-up by printers and files original envelope in holding bin to await return of finished work. Routes orders requiring make-up of copy negative to appropriate section. Routes film requiring outside processing to outgoing section. Reassembles returned orders with original customer envelope and routes for packing.

May maintain daily production tally. May affix sticker to envelope to indicate more than one type of processing required to complete orders.

Education, Training and Experience

Two years of high school is preferred. One month training on-the-job is provided to acquaint worker with sorting procedures. Clerical experience is helpful to acquire proficiency and rapidity in marking and recording duties.

Worker Traits

Aptitudes -

Numerical ability is required to count negatives and prints for customer reprint orders.

Motor coordination, finger dexterity, and manual dexterity are needed to handle film, prints, and envelopes, and to use automatic stamping machine.

Clerical perception is required for entering data on customer order envelopes and production report sheets.

Color vision is needed to determine processing or priority required as denoted by color coded film envelopes.

Interests -

A preference for working with things and objects, and performing routine organized activities involving sorting of film, prints, and envelopes.

Temperaments -

Sorting of customers' orders and use of automatic stamping machine involve routine repetitive tasks which are carried out under specific instructions.

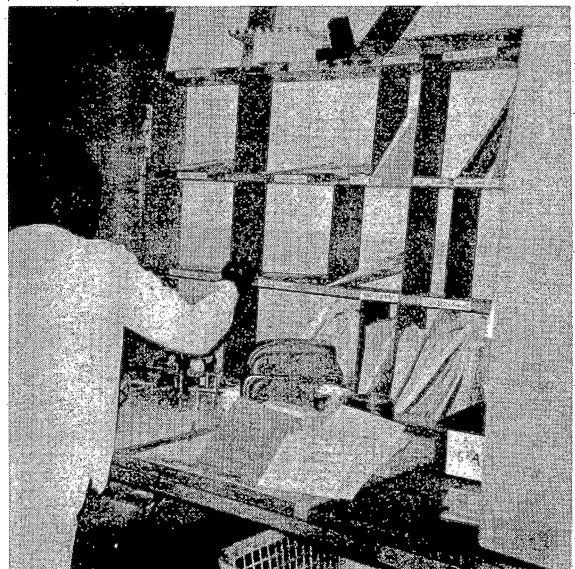
Physical Demands and Working Conditions

Work is light.

Frequent reaching and handling are involved in sorting of film and reprints. Constant fingering and feeling are involved in removal and insertion of materials into order envelopes.

Near visual acuity is required to read customers' instructions. Color vision is necessary to distinguish types of color coded film.

Reprint Sorter placing customer envelope with negative in designated bin according to finishing requirements.



ROLL PRINT CUTTER
976.885
paper cutter

Occupational Definition

Tends automatic or semi-automatic paper cutting machines to cut printed roll paper into individual prints: Loads processed roll paper on spindle of cutting machine, and places customer envelopes, already in print number sequence, on work table. Compares first number on roll with customer envelope to ensure matching. Observes shade of graphite mark on reverse side of print, and adjusts sensitivity control knob to light or dark setting to synchronize timing of cutting blades with density of graphite mark.

Threads paper end between pre-set machine guides and starts automatic machine that feeds paper over micro-switch, activating cutters and ejecting cut prints into catch-box. Separates prints when graphite mark fails to activate cutting knives, using hand cutter or scissors. Feels print edges to determine sharpness of cut, and notifies supervisor regarding roughness of edges which indicate need for repairs or replacement of cutting knives. Counts prints, observes print numbers and places prints in tray with matching customer envelopes.

Threads roll paper end through semi-automatic paper cutting machine guides, and depresses foot pedal repeatedly to feed and cut rolls into individual prints. May bag prints and assemble customer orders. May be designated according to type of prints cut, such as Print Cutter, Color; Print Cutter, Black and White.

Education, Training and Experience

Two years of high school is required by most employers. This is an entry job and two weeks on-the-job training is provided to learn to prepare and tend machines that cut paper according to size.

Worker Traits

Aptitudes -

Form perception is needed to observe shades of graphite cutting mark to determine if mark is heavy enough to activate cutting knives.

Motor coordination, finger dexterity, and manual dexterity are required to set sensitivity control knobs, thread paper between machine guides, and load prints into trays.

Eye-hand-foot coordination is used to depress and release pedal when cutting paper roll into individual print with semi-automatic paper cutter.

Interests -

A preference for activities dealing with such things and objects as roll paper, prints, and machines. Work activities are nonsocial in nature, and are carried out in relation to cutting processes, machines, and techniques.

Temperaments -

Worker must adjust to repetitive, short cycle operations carried out according to set procedures; and must adhere to established standards of accuracy when cutting printed rolls.

Physical Demands and Working Conditions

Work is light, involving frequent lifting and carrying of film rolls weighing up to 12 pounds. Hand-arm controls are required to adjust sensitivity control knob.

Worker must reach and handle prints ejected from cutting machine, and finger and feel edges of cut prints for roughness.

Near visual acuity is required to accurately check numbers on prints.

Roll Print Cutter removing
cut prints from hopper
of automatic machine.



and imperfections in negatives, and to color or correct them accordingly.

Motor coordination and finger dexterity are required to use artists' tools and apply materials accurately.

Color discrimination is essential for determination and application of colors and shades.

Interests -

A preference for activities of a creative nature resulting in tangible, productive satisfaction to produce attractive photographs of acceptable quality.

Temperaments -

Work situations involve coloring and corrective operations evaluated against sensory and judgmental criteria, and attainment of prescribed standards to accomplish work according to instructions.

Physical Demands and Working Conditions

Work is sedentary.

Worker frequently reaches for, handles, and fingers negatives, brushes, pencils, etching knife and other tools and materials during coloring or correcting process; and feels negatives to ascertain dryness.

Near visual acuity is required to examine and retouch negatives and color photographs.

PLANT SEARCH CLERK

249.387

search clerk

Occupational Definition

Searches for missing items by examining unidentified prints and negatives, daily route cards, and production sheets to complete customer orders. Reads tracer cards and telephone sheets to learn description of missing items. Searches through unidentified-print file and examines prints for details corresponding to description. Studies dated route cards and production sheets to determine progression and individual processing operation required for missing items.

Visits departments in which items were due for specific processing, and searches through box containing unidentified prints and film. Returns located items to customer service operator to expedite orders. Delivers unfinished film or prints to appropriate departments for such processing as reprinting, enlarging, or duplicating. Maintains file of unidentified prints by size, type, and date to facilitate location and identification of missing items. Purges file at specified intervals.

Education, Training and Experience

Two years of high school preferred. Workers with sorting experience are generally considered for this job. Up to one month of training is given on-the-job.

Worker Traits

Aptitudes -

Clerical ability is required to maintain files in chronological order for accessibility of unidentified prints and negatives by type, size and date.

Form perception is necessary to compare images on negatives and unidentified prints to locate matching pairs of items.

Finger and manual dexterity are required to handle and file negatives and prints rapidly and accurately.

Color vision is needed to identify color shadings and objects on unidentified prints when comparing with negatives.

Interests -

A preference for activities involving searching for and comparing things and objects. Interest in activities of an organized nature to maintain a file systematically.

Temperaments -

Evaluates information against sensory or verifiable criteria to examine unidentified prints according to description of details, or to match prints with customer negatives.

Physical Demands and Working Conditions

Work is light, involving frequent walking about plant and standing at print files and other locations.

Constant reaching, handling, and fingering are required while searching for missing prints.

Near visual acuity is needed to discern figures and objects on negatives when comparing them with prints to find corresponding sets. Color vision is required for identification of colored prints.



Plant Search Clerk examining negatives and prints to locate items missing from customer order.

PRINT DEVELOPER, MACHINE

976.885

darkroom man, paper; hypo splasher; print developer; processor operator; splicer

Occupational Definition

Tends paper processing machines that automatically develop, fix, wash and dry photographic prints: Turns valves to fill tanks to specified level with chemical solutions such as developers, fixers, and water baths. Adjusts valves according to gage readings to regulate continuous flow of chemicals and to maintain level required for coverage of paper during processing. Observes gages on control panel to ensure that prescribed temperatures are maintained, and notifies foreman regarding irregularities.

Threads leader through guides onto drying drum and take-up spool. Splices roll end of printed photographic paper to leader, using splicing paper and heating irons. Starts machine to effect transporting of photographic paper through solutions such as developers, fixers, and water baths, and onto drying drum and take-up spool. Feels edges of paper for rips as it unrolls, and uses tape or stapler to mend tears to ensure continuous running of paper through solutions.

Adjusts valves to drain specified chemicals into reclaim lines, and used solutions into disposal drain. Fills and flushes tanks with water and cleaning acids, and uses brush to remove burrs from tanks and rollers. May be designated according to type of paper processed, as Paper Processor, Color; Paper Processor, Black and White.

Education, Training and Experience

Educational requirements vary from two years of high school to high school graduation with some chemistry background. Workers with printing or racking experience usually receive training up to three months on-the-job to learn to distinguish size of paper by feel, to splice ends of paper roll, and prepare and tend machines under darkroom conditions.

Worker Traits

Attitudes -

Form perception is required to thread paper leaders through machine guides, to splice rolls to leader, and splice torn prints with paper tape.

Motor coordination, finger dexterity, and manual dexterity are needed to adjust valves, splice paper

rolls and torn prints, and to mend tears.

Interests -

Work activities involve dealing with such things and objects as stapler, tape, paper rolls, and spools. Work situations are nonsocial in nature, and are carried on in relation to processes, machines and techniques.

Temperaments -

Work activities are short cycle in nature, carried out according to set procedures, to thread and splice paper and tend machines.

Physical Demands and Working Conditions

Work is light, involving lifting and carrying paper rolls weighing up to 10 pounds.

Frequent reaching, handling, fingering, and feeling is involved when handling rolls of printed paper and loading machine.

Accommodation of vision is required to develop prints under semi-dark or darkroom conditions.

Worker is exposed to fumes, odors and skin irritations from chemicals, and noise from machines.

PROOF SORTER
976.687

Occupational Definition

Matches negatives with proofs, files negatives and packs proofs for shipment to customer, and assembles returned proofs and negatives for processing; Compares proof with negative image to ensure matching of items. Places proof under head of automatic stamping machine and depresses foot pedal to imprint identification number on reverse side.

Selects folder of appropriate size to accommodate negative for filing, and imprints identical number on folder for subsequent matching. Sorts proofs according to customer identification numbers, places batched proofs into container, and tapes order card to container for identification and shipment to customer. Inserts negatives into folders and files folders numerically in cabinet to await return of customer's proof selections.

Sorts returned proofs in numerical order, and removes matching-numbered folder from file. Removes negatives from folder and matches with proofs. Reads customer instructions and routes order for retouching or finishing.

Maintains daily production record to indicate number of negatives received and filed, and number of proofs mailed to customer.

Education, Training and Experience

Minimum of two years' high school preferred. No previous experience is necessary for this entry job. One month of training on-the-job is usually required to learn to match, sort, and/or file negatives and proofs.

Worker Traits

Aptitudes -

Form perception is necessary to observe details in proofs and negatives when comparing for matching purposes.

Clerical perception is required for checking numbers imprinted on negative folders and filing in prescribed sequence; and for matching file folder numbers with proof numbers.

Finger dexterity and manual dexterity are required to handle proofs and negatives when matching or filing.

Eye-hand-foot coordination is required for depressing pedal to imprint identical number on proofs and negative folders.

Interests -

A preference for activities involving handling of things and objects such as proofs, negatives, order cards, containers, and file folders. An interest in situations that are routine and organized and involve matching customer's proofs with negative folders.

Temperaments -

Work involves repetitive, short cycle tasks performed under specific instructions with little independent action required to match, stamp, file, pack and assemble proofs or negatives.

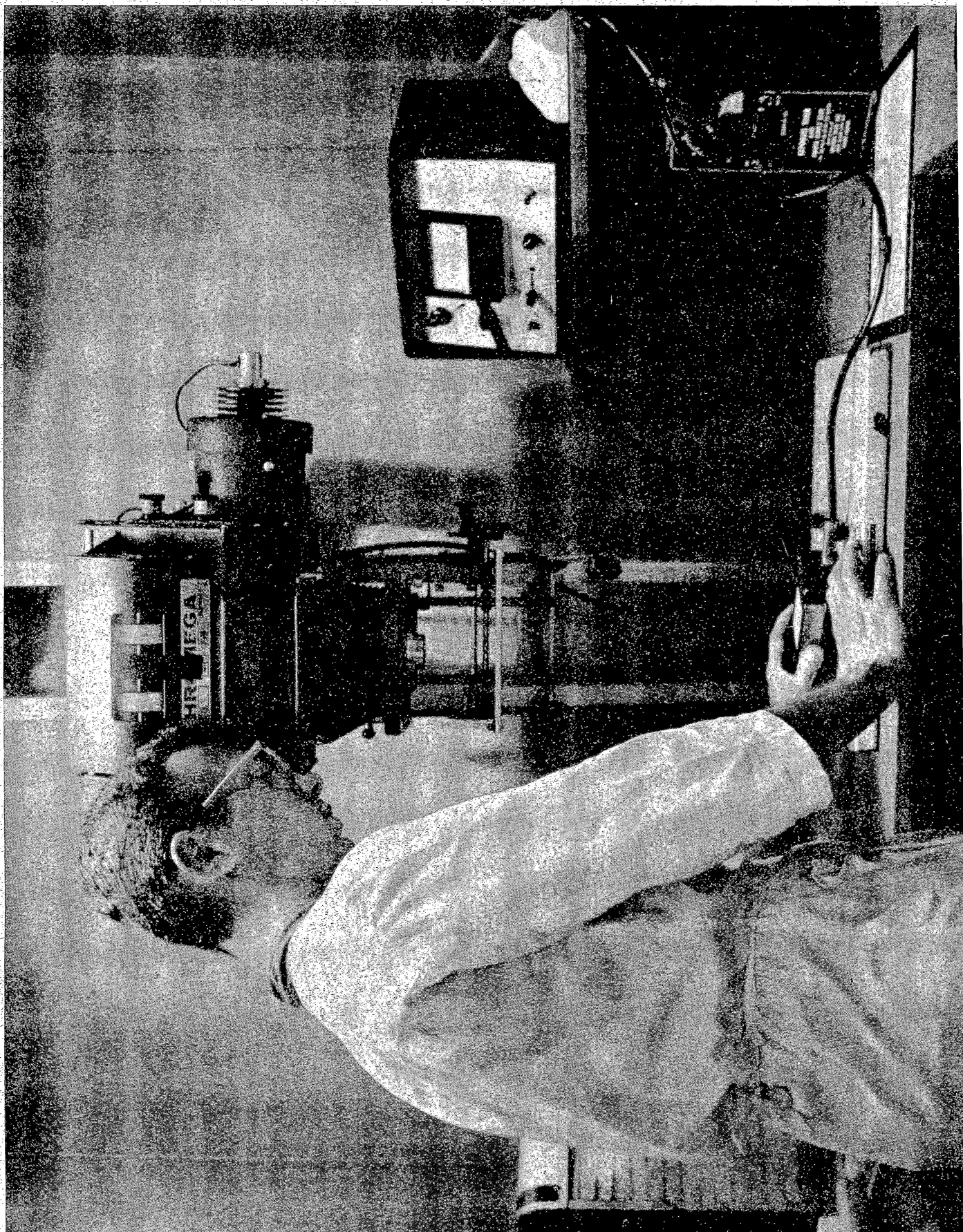
Physical Demands and Working Conditions

Work is light, involving frequent lifting and carrying of batches of proofs and negatives weighing up to five pounds. Foot-leg controls are required to depress pedal to actuate automatic number stamps.

Occasional stooping is necessary for search through file drawers to locate numbered negative folders.

Worker reaches for and handles negatives, folders, and proofs during performance of duties.

Near visual acuity is required to match items, locate orders in file, and read markings and numbers on negative folders and proofs.



Projection Printer pushing button on exposure timer
to set machine for printing of negatives.

PROJECTION PRINTER

976.381

enlarger technician; photograph enlarger;
projection-camera operator

Occupational Definition

Makes enlarged or reduced photographic prints from original negatives using projection printer; Sorts orders according to type and size of film and projection requirements. Removes negative from customer order and stamps identifying number on envelope to ensure match with print after developing. Examines negative for contrast to determine density and shading requirements. Stamps identifying print number on selected paper, using hand operated numbering device.

Places paper in frame, adjusts sliding arms of frame to outline printing area on paper, and slides frame into slots in machine head to hold it during printing. Turns knobs to adjust lens opening and raises or lowers carriage of printer to focus image within outlined area on paper. Inserts timer plug into enlarger socket, turns dial to set exposure time according to density and shading requirements, and starts machine.

Pushes button on exposure timer and listens for timer bell signaling automatic setting of machine to print negatives. Removes timer plug and inserts foot pedal plug to achieve quantity production. Inserts each negative into holder and slides holder into machine. Depresses and releases pedal to produce prints in quantities. Varies contrast in prints by movement of hands over negative to concentrate or deflect light, so as to effect shading of specific area. Covers designated areas on negative, using cardboard for blocking, to produce cropped prints. Removes print from machine after each exposure, and places it in appropriate bag to avoid damage from light. Drops prints into tray containing developer solution to start developing operation, and moves prints around, by hand or using tongs, until images are clear. Removes prints from solution and immerses in stop-bath to arrest developer action (Developer).

May compare prints with negatives or standard prints to ascertain similarity of colors and shades. May write correction symbols on reverse side of prints if spotting or reprinting is needed. May clean negatives, using negative cleaner and cloth, to remove scratches and dust specks. May place enlargements on lighted table to view picture characteristics, and correct defective areas. May count number of enlargements in customer's order and compute, stamp, or write price on envelope.

Education, Training and Experience

Two years of high school is the minimum educational requirement. Printing experience is usually a prerequisite for

promotion to this job. One to three months of on-the-job training is provided to teach worker techniques for coloring and shading prints, and principles of print machine operations.

Worker Traits

Aptitudes -

Form perception is required to view negatives for size, printing density and shading requirements.

Motor coordination, finger dexterity, and manual dexterity are needed to fit paper into machine and adjust controls.

Eye-hand-foot coordination is required to depress and release foot pedal to produce prints in quantity.

Interests -

A preference for activities dealing with things and objects such as negatives, prints and envelopes; and an interest in activities that are nonsocial in nature and are carried on in relation to enlarging processes, printing machines, and retouching techniques.

Temperaments -

Situations involve a variety of duties characterized by frequent change to sort, print and develop film. An evaluation of negatives and prints is required to determine the need for reprint or retouch, utilizing sensory or judgmental criteria.

Physical Demands and Working Conditions

Work is sedentary, involving hand-arm movement to push control knobs, and to raise or lower lever which adjusts lens to desired focus. Foot-leg controls are required to depress foot pedal for printing pictures.

Worker constantly reaches for, handles, and fingers negatives, paper, paint brushes, pencils, envelopes, machine controls and attachments, tape, and cardboard.

Near visual acuity is required to observe differences in forms and shades. Visual accommodation is needed to adjust from working in dark to working in lighted areas. Color vision is necessary to effect color corrections and produce color prints.

REEL FILM INSPECTOR
976.382
projectionist

Occupational Definition

Operates motion picture projector to inspect film reels for defects, and measures film width to determine need for repairing or making adjustments in slitting operation; Selects specified number of reels at random from first cut-up production reel. Threads first reel through projector parts, and attaches film end to take-up reel. Starts projector and adjusts lens to focus film image on screen. Inspects running film for underexposure or overexposure, color density, scratches, shading, and foreign matter.

Notes findings on quality control sheet, stops projector, and rewinds and removes reel. Measures film width, using gage, and notifies Slitting Department head if film does not conform to prescribed tolerances. Repeats entire process with remaining reels.

Education, Training and Experience

Minimum of two years of high school is acceptable to most employers. Selection generally includes workers with printing or inspection experience. On-the-job training up to one month is required for proficient operation of projector and application of inspection techniques.

Worker Traits

Aptitudes -

Form perception is needed to examine film for defects.

Clerical perception is necessary to record film defects on quality control sheet.

Motor coordination, finger dexterity, and manual dexterity are required to handle and thread film through projector to determine defects, so that processing or slitting corrections can be made quickly.

Color perception is required to examine film for color density.

Interests -

A preference for activities dealing with such things and objects as film, reels, quality control sheets,

and gages. Interests involve situations that are nonsocial in nature and are carried on with relation to operating a projector, and the inspection of film.

Temperaments -

Work situations involve evaluating conformance of film to prescribed tolerances against sensory or judgmental criteria, and against measurable or verifiable criteria.

Physical Demands and Working Conditions

Work is light, involving occasional lifting and carrying of bins of film weighing up to 12 pounds. Hand-arm controls are used to operate projector.

Worker constantly reaches for, handles and fingers film.

Near visual acuity, color vision, and field of vision are required to detect flaws in film.

REPRINT SORTER
976.687
copy and reprint sorter

Occupational Definition

Sorts customer envelopes containing requests for reprints according to size, type, and finishing requirements. Stamps customer envelope, using automatic stamping machine, to indicate time and day received, and to provide record of service. Separates orders marked for priority handling.

Opens customer envelope, removes contents, sorts film and reads instructions to determine type of processing required. Marks or stamps envelopes to indicate number of credit coupons enclosed, and destroys coupons. Cleans negatives, using cloth, brush, and cleaning agents. Writes finishing instructions for printing on transfer envelope when more than one type of work is requested by customer.

Places envelope with negative in designated bins for pick-up by printers and files original envelope in holding bin to await return of finished work. Routes orders requiring make-up of copy negative to appropriate section. Routes film requiring outside processing to outgoing section. Reassembles returned orders with original customer envelope and routes for packing.

May maintain daily production tally. May affix sticker to envelope to indicate more than one type of processing required to complete orders.

Education, Training and Experience

Two years of high school is preferred. One month training on-the-job is provided to acquaint worker with sorting procedures. Clerical experience is helpful to acquire proficiency and rapidity in marking and recording duties.

Worker Traits

Aptitudes -

Numerical ability is required to count negatives and prints for customer reprint orders.

Motor coordination, finger dexterity, and manual dexterity are needed to handle film, prints, and envelopes, and to use automatic stamping machine.

Clerical perception is required for entering data on customer order envelopes and production report sheets.

Color vision is needed to determine processing or priority required as denoted by color coded film envelopes.

Interests -

A preference for working with things and objects, and performing routine organized activities involving sorting of film, prints, and envelopes.

Temperaments -

Sorting of customers' orders and use of automatic stamping machine involve routine repetitive tasks which are carried out under specific instructions.

Physical Demands and Working Conditions

Work is light.

Frequent reaching and handling are involved in sorting of film and reprints. Constant fingering and feeling are involved in removal and insertion of materials into order envelopes.

Near visual acuity is required to read customers' instructions. Color vision is necessary to distinguish types of color coded film.

Reprint Sorter placing customer envelope with negative in designated bin according to finishing requirements.



ROLL PRINT CUTTER
976.885
paper cutter

Occupational Definition

Tends automatic or semi-automatic paper cutting machines to cut printed roll paper into individual prints: Loads processed roll paper on spindle of cutting machine, and places customer envelopes, already in print number sequence, on work table. Compares first number on roll with customer envelope to ensure matching. Observes shade of graphite mark on reverse side of print, and adjusts sensitivity control knob to light or dark setting to synchronize timing of cutting blades with density of graphite mark.

Threads paper end between pre-set machine guides and starts automatic machine that feeds paper over micro-switch, activating cutters and ejecting cut prints into catch-box. Separates prints when graphite mark fails to activate cutting knives, using hand cutter or scissors. Feels print edges to determine sharpness of cut, and notifies supervisor regarding roughness of edges which indicate need for repairs or replacement of cutting knives. Counts prints, observes print numbers and places prints in tray with matching customer envelopes.

Threads roll paper end through semi-automatic paper cutting machine guides, and depresses foot pedal repeatedly to feed and cut rolls into individual prints. May bag prints and assemble customer orders. May be designated according to type of prints cut, such as Print Cutter, Color; Print Cutter, Black and White.

Education, Training and Experience

Two years of high school is required by most employers. This is an entry job and two weeks on-the-job training is provided to learn to prepare and tend machines that cut paper according to size.

Worker Traits

Aptitudes -

Form perception is needed to observe shades of graphite cutting mark to determine if mark is heavy enough to activate cutting knives.

Motor coordination, finger dexterity, and manual dexterity are required to set sensitivity control knobs, thread paper between machine guides, and load prints into trays.

Eye-hand-foot coordination is used to depress and release pedal when cutting paper roll into individual print with semi-automatic paper cutter.

Interests -

A preference for activities dealing with such things and objects as roll paper, prints, and machines. Work activities are nonsocial in nature, and are carried out in relation to cutting processes, machines, and techniques.

Temperaments -

Worker must adjust to repetitive, short cycle operations carried out according to set procedures; and must adhere to established standards of accuracy when cutting printed rolls.

Physical Demands and Working Conditions

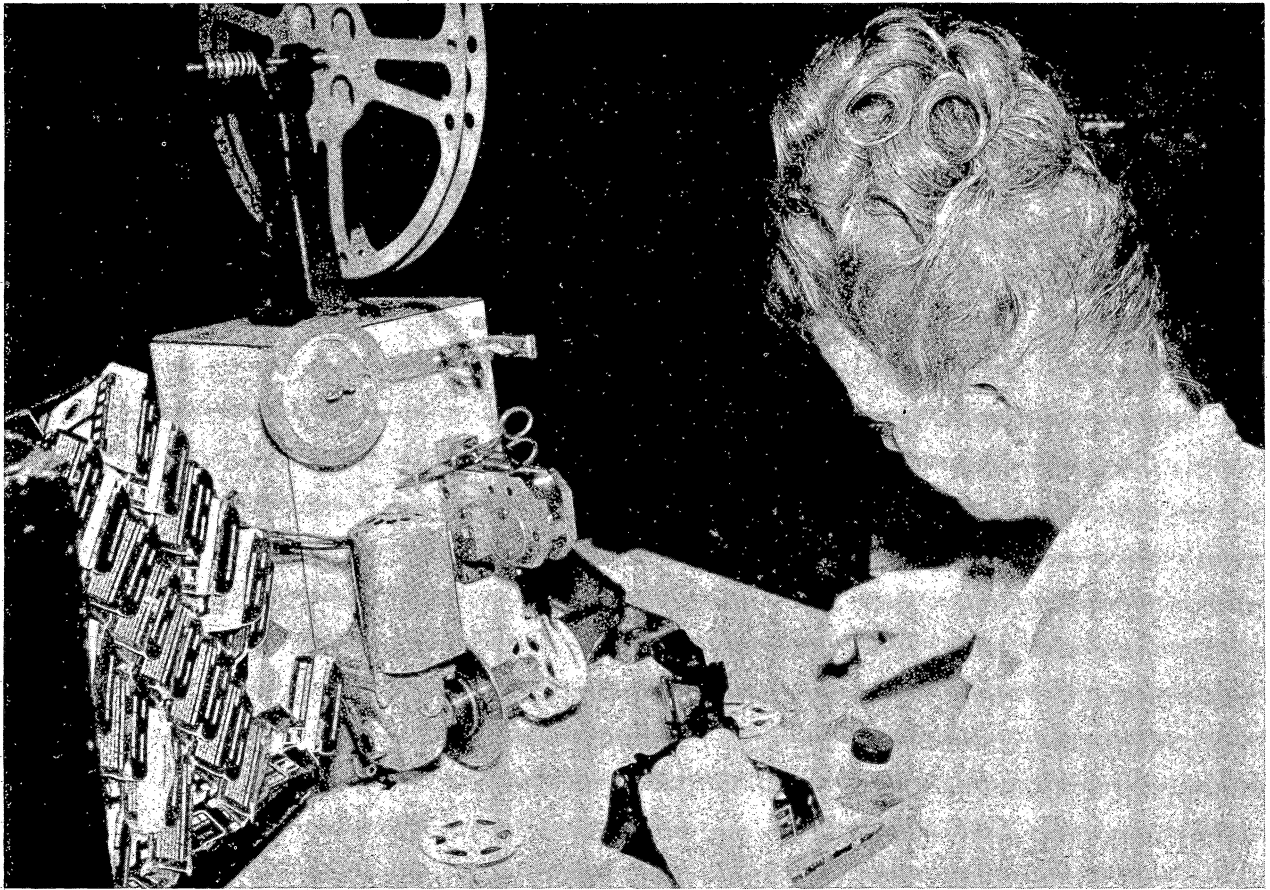
Work is light, involving frequent lifting and carrying of film rolls weighing up to 12 pounds. Hand-arm controls are required to adjust sensitivity control knob.

Worker must reach and handle prints ejected from cutting machine, and finger and feel edges of cut prints for roughness.

Near visual acuity is required to accurately check numbers on prints.

Roll Print Cutter removing
cut prints from hopper
of automatic machine.





Slitter, Processed Film, rubbing film end on serrated section
of splicing device to roughen surface for application
of glue before splicing.

SLITTER, PROCESSED FILM
976.884
slitting machine operator

Occupational Definition

Slits, splices, and rewinds processed lengths of double 8mm movie film, using slitting and rewinding machine: Positions master film reel onto upper spindle and two take-up reels onto lower spindles of slitting machine. Cuts leader from film and trims film edge, using scissors. Inserts and guides film into slitting head, while turning feed knob to slit length for attachment to take-up reels. Tucks film ends into slots of take-up reels, starts motor, and depresses pedal to actuate slitter and winding mechanism.

Observes film to detect staple indicating end of individual film strip as it is drawn into slitters, releases pedal to stop slitter, and cuts film at stapled section. Removes loaded take-up reels from below slitting head and places on spindles located at opposite end of table to prepare film for splicing and rewinding into single roll.

Rubs film end on serrated section of splicing device to roughen surface. Applies glue to roughened surface and places end from opposite reel over glued surface, positioning sprocket holes over guide pins to secure and align film during splicing. Closes splicer gate to apply pressure and to trim film. Opens gate, removes film, and depresses pedal to wind film onto one take-up reel.

Splices leader to end of film strip, and winds spliced film onto customer's reel. Uses rubber band to secure film. Records splicer identification number, initials, and date on route slip, and places film and slip in tray for delivery.

Education, Training and Experience

Completion of two years' high school is preferred. This is an entry job requiring no previous experience. Up to one month on-the-job training is provided to learn slitting, splicing, and winding operations.

Worker Traits

Aptitudes -

Form perception is required to determine where to cut leader from film strip and trim film ends.

Motor coordination, finger dexterity, and manual dexterity are required to rapidly and accurately load

and insert film into slitter, tend machine, and align and splice film.

Eye-hand-foot coordination is needed to depress and release foot pedal to actuate and stop slitting and winding mechanism at precise time while observing operation.

Interests -

A preference for activities which are routine, organized and nonsocial in nature, and carried on in relation to slitting and splicing processes, slitting and winding machines, and techniques of slitting and splicing 8mm film.

Temperaments -

Work situations involve repetitive and short cycle operations to slit, splice and wind film. Tasks are performed under specific instructions with little independent judgment or action required.

Physical Demands and Working Conditions

Work is sedentary, involving hand-arm and foot-leg controls to turn film feed knob and to regulate action of slitter and winding devices.

Worker frequently reaches for, handles, and fingers film in splicing, slitting and winding operations.

Near visual acuity is required to feed film into slitter and for detecting stapled sections.

SPLICER
976.884

Occupational Definition

Splices individual rolls of film to form master reel for continuous processing, using stapling, eyelet, or heat-sealing machines: Snaps processing and loading reels on spindles located at opposite ends of machine table. Loads eyelets or staples into machine hopper, uses hand punch to perforate film, or paper cutter to cut splicing tape to required size. Removes identifying marker from film container and places it at film end to identify film roll after processing. Inserts end of leader into slot of loading reel and turns handle to wind leader onto reel. Slides free end of leader under slide bar and pushes film end from opposite side to overlap leader end.

Starts motor and depresses foot pedal to splice ends with staples or eyelets. Removes spliced section and cuts off excess film, using scissors. Turns spindle handle to wind spliced roll onto loading reel, leaving end free for splicing next roll.

Switches on heat-sealing machine when splicing 35mm film. Pushes end of film under cutter and depresses pedal to trim film edges for matching and sealing. Places sealing tape between locator pins of slide bar. Positions film sprocket holes and leader, end to end, on locator pins over splicing tape and lays splicing tape over film and leader ends. Closes gate over assembly to hold it in place during sealing. Pushes slide bar forward over micro-switch, causing heat-sealing head to descend on assembly to splice ends and form reel for continuous processing.

Splices film rolls end to end, following loading sequence, until all film has been attached. Splices leader to end of last film and winds film from loading reel onto processing reel. Removes processing reel from spindle and places in corresponding reel can for removal to processing section.

Education, Training and Experience

Completion of two years of high school is preferred. This is an entry job requiring up to one month of on-the-job training to learn film splicing techniques.

Worker Traits

Aptitudes -

Form perception is required to make visual comparisons and discriminations in widths and lengths of

film during splicing and stapling operations.

Motor coordination, finger dexterity, and manual dexterity are required to rapidly load reels on spindles, splice film ends, and remove reels.

Eye-hand-foot coordination is required to synchronize foot pedal movements with positioning of slide bar to accomplish rapid splicing of film.

Interests -

A preference for activities dealing with such things and objects as film reels, leaders, staples, eyelets and sealing tape in splicing activities, which are routine, concrete, and organized in nature.

Temperaments -

Work situations involve repetitive, short cycle operations to plice, wind, and cut film according to prescribed standards.

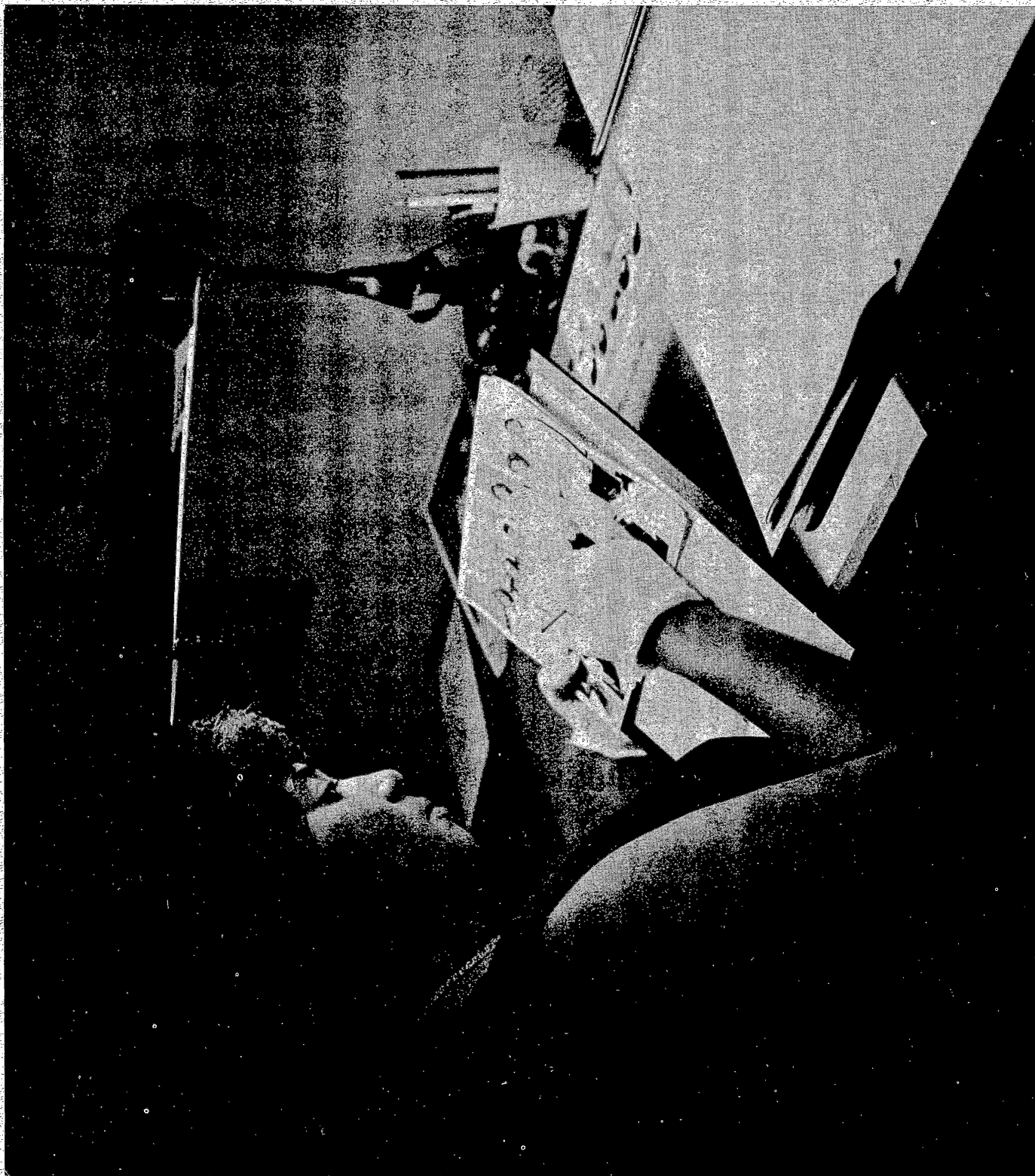
Physical Demands and Working Conditions

Work is sedentary, involving hand-arm controls to push slide bar into position and turn handle to wind film. Foot-leg controls are required to depress and release foot pedal to actuate stapler and cutter.

Worker must reach for, handle, finger, and feel film constantly in performance of tasks.

Near visual acuity and visual accommodation are necessary for accurate and rapid splicing of film in darkroom.

Noise of stapling machines makes ordinary conversation difficult.



Spotter, Photographic, removing imperfections from finished photographs.

SPOTTER, PHOTOGRAPHIC
970.781
spotter

Occupational Definition

Spots out imperfections on finished photographs, using pencil or paintbrush; Examines prints visually or with aid of viewing box, to detect blemishes or dust spots and determines the corrections necessary to produce photographs of acceptable quality. Selects prepared paint or blends paint, using color chart to match color required.

Rubs matching paint over defect, using gloved finger or artist's brush, or uses pencil, to correct color imbalances or conceal flaws in prints. Covers minute flaws in prints, using point of artist's brush to apply matching paint. Smooths print surfaces with soft cloth to reduce excessive gloss.

May trim print edges, using scissors or paper cutter. May place prints in customer envelope and mark outside with number of chargeable prints.

Education, Training and Experience

Educational requirements range from two years of high school to high school graduation with courses in art. This is an entry job, requiring no previous experience. A short demonstration is provided on-the-job to acquaint the worker with color-blending techniques and types of corrections required.

Worker Traits

Aptitudes -

Form perception is required to detect imperfections in prints.

Motor coordination and finger dexterity are essential for skillful use of artist's tools and accurate application of colors to correct flaws in prints.

Color perception is necessary to blend and match colors and to use color chart.

Interests -

A preference for activities dealing with the application of things and objects such as paint and pencils to color prints, resulting in tangible and

productive satisfaction in finished prints.

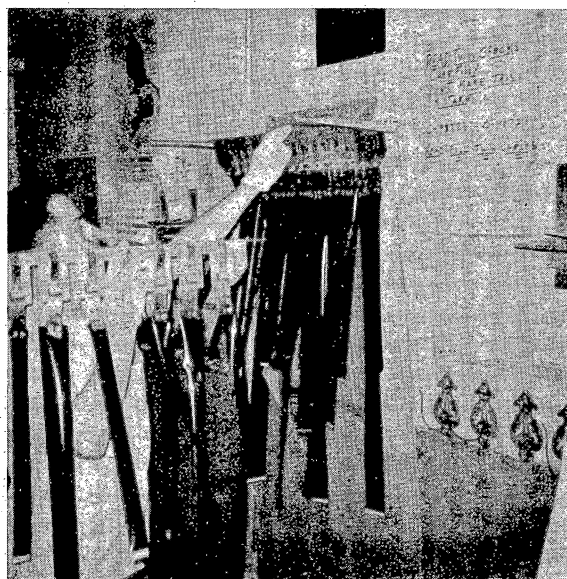
Temperaments -

Work requires frequent change depending on nature of print corrections required, and involves the attainment of prescribed standards to examine prints for flaws and make required corrections.

Physical Demands and Working Conditions

Work is sedentary, and involves constant reaching, handling and fingering of prints, pencils, paints, and brushes.

Near visual acuity and color vision are required to perceive flaws, match colors, and bland paints.



Take-Down Sorter placing rack of
processed film strips on sorting
rack after removal from dryer.

TAKE-DOWN SORTER
976.687
sorter, take-down

Occupational Definition

Removes processed negative film strips and sheets from drying cabinet, matches with customer envelope, and sorts according to size and type, preparatory to printing; Observes temperature gage on drying cabinet, and adjusts thermostat or notifies supervisor when indicator deviates from specified range.

Removes damaged film from rack clips, dips twisted or dirty film in solution to soften and clean, and mends torn film by binding edges with transparent tape or by overlapping edges, using sealing solution. Hangs reconditioned film on rods to dry.

Notifies darkroom operator or supervisor concerning need for machine adjustments or solution changes if excessive irregularities occur. Feels film in drying cabinet to determine extent of dryness, and retains damp strips in cabinet until completely dry. Removes weighted clips from ends of film, lifts racks from dryer and places on sorting racks. Matches number on customer's envelope with that on corresponding film.

Examines processed film for clarity of image to determine printability. Routes blank film to supervisor for disposition. Hangs acceptable film and matching envelope, with twincheck visible, on labeled spindles according to size and type of film. Separates rush orders from regular orders for printing priority.

May observe film passing through dryer for tears, twists and dirt. May mark price of processing on customer's envelope. May be designated according to type of negative sorted, as Take-Down Sorter, Black and White, or Take-Down Sorter, Color.

Education, Training and Experience

Two years of high school is generally preferred. Workers with racking or sorting experience are frequently promoted to this job. Such workers receive up to one month of on-the-job training to learn film sizes by sight, recognition of film irregularities, degree of film dryness required, film repairing techniques, and sorting procedures.

Worker Traits

Aptitudes -

Form perception is necessary to detect irregularities

in shapes and shadings of film negatives.

Motor coordination, finger dexterity, and manual dexterity are required for examining, matching, repairing and sorting film.

Interests -

Work activities indicate a preference for dealing with things and objects such as negatives, envelopes, clips and tape in situations that are routine, concrete, and organized, while sorting and matching negatives to customer envelopes.

Temperaments -

Work situations involve repetitive and short cycle tasks to take down, sort, and match. Detection of irregularities in film and determination of degree of dryness of film require evaluation against sensory criteria.

Physical Demands and Working Conditions

Work is light and frequently involves lifting and carrying racks of film weighing 3 to 5 pounds.

Worker must reach, handle, finger, and feel continuously in the course of the job.

Near visual acuity is required to read twincheck numbers and notations on customer envelopes.

Workers must use caution to avoid burns in drying machine.

Work area contains fumes and odors, generally not harmful, resulting from developing solutions.

DEFINITIONS OF WORKER TRAITS

APTITUDES: Specific capacities and abilities required of an individual in order to learn or perform adequately a task or job duty.

INTELLIGENCE: General learning ability. The ability to "catch on" or understand instructions and underlying principles. Ability to reason and make judgments. Closely related to doing well in school.

VERBAL: Ability to understand meanings of words and ideas associated with them, and to use them effectively. To comprehend language, to understand relationships between words, and to understand meanings of whole sentences and paragraphs. To present information or ideas clearly.

NUMERICAL: Ability to perform arithmetic operations quickly and accurately.

SPATIAL: Ability to comprehend forms in space and understand relationships of plane and solid objects. May be used in such tasks as blueprint reading and in solving geometry problems. Frequently described as the ability to "visualize" objects of two or three dimensions, or to think visually of geometric forms.

FORM PERCEPTION: Ability to perceive pertinent detail in objects or in pictorial or graphic material; to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines.

CLERICAL PERCEPTION: Ability to perceive pertinent detail in verbal or tabular material; to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation.

MOTOR COORDINATION: Ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. Ability to make a movement response accurately and quickly.

FINGER DEXTERITY: Ability to move the fingers and manipulate small objects with the fingers rapidly or accurately.

MANUAL DEXTERITY: Ability to move the hands easily and skillfully. To work with the hands in placing and turning motions.

EYE-HAND-FOOT COORDINATION: Ability to move the hand and foot coordinately with each other in accordance with visual stimuli.

COLOR DISCRIMINATION: Ability to perceive or recognize similarities or differences in colors, or in shades or other values of the same color; to identify a particular color, or to recognize harmonious or contrasting color combinations, or to match colors accurately.

INTERESTS: Preferences for certain types of work activities or experiences, with accompanying rejection of contrary types of activities or experiences. Five pairs of interest factors are provided so that a positive preference for one factor of a pair also implies rejection of the other factor of that pair.

- | | | |
|--|------------|--|
| 1. Situations involving a preference for activities dealing with things and objects. | <u>vs.</u> | 6. Situations involving a preference for activities concerned with people and the communication of ideas. |
| 2. Situations involving a preference for activities involving business contact with people. | <u>vs.</u> | 7. Situations involving a preference for activities of a scientific and technical nature. |
| 3. Situations involving a preference for activities of a routine, concrete, organized nature. | <u>vs.</u> | 8. Situations involving a preference for activities of an abstract and creative nature. |
| 4. Situations involving a preference for working for people for their presumed good, as in the social welfare sense, or for dealing with people and language in social situations. | <u>vs.</u> | 9. Situations involving a preference for activities that are nonsocial in nature, and are carried on in relation to processes, machines, and techniques. |
| 5. Situations involving a preference for activities resulting in prestige or the esteem of others. | <u>vs.</u> | 0. Situations involving a preference for activities resulting in tangible, productive satisfaction. |

TEMPERAMENTS: Different types of occupational situations to which workers must adjust.

1. Situations involving a variety of duties often characterized by frequent change.
2. Situations involving repetitive or short-cycle operations carried out according to set procedures or sequences.
3. Situations involving doing things only under specific instruction, allowing little or no room for independent action or judgment in working out job problems.
4. Situations involving the direction, control and planning or an entire activity or the activities of others.
5. Situations involving the necessity of dealing with people in actual job duties beyond giving and receiving instructions.
6. Situations involving working alone and apart in physical isolation from others, although the activity may be integrated with that of others.
7. Situations involving influencing people in their opinions, attitudes, or judgments about ideas or things.
8. Situations involving performing adequately under stress when confronted with the critical or unexpected or when taking risks.
9. Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against sensory or judgmental criteria.
10. Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against measurable or verifiable criteria.
11. Situations involving the interpretation of feelings, ideas, or facts in terms of personal viewpoint.
12. Situations involving the precise attainment of set limits, tolerances, or standards.

PHYSICAL DEMANDS: Those physical activities required of a worker in a job. The physical demands referred to serve as a means of expressing both the physical requirements of the job and the physical capacities (specific physical traits) a worker must have to meet the requirements.

1. Lifting, Carrying, Pushing, and/or Pulling (Strength). These are the primary "strength" physical requirements, and generally speaking, a person who engages in one of these activities can engage in all.

Specifically, each of these activities can be described as:

- (1) Lifting: Raising or lowering an object from one level to another (includes upward pulling).
- (2) Carrying: Transporting an object, usually holding it in the hands or arms or on the shoulder.
- (3) Pushing: Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking, and treadle actions).
- (4) Pulling: Exerting force upon an object so that the object moves toward the force (includes jerking).

The five degrees of this factor (Lifting, Carrying, Pushing, and/or Pulling) are:

S-SEDENTARY WORK: Lifting 10 lbs. maximum and occasionally lifting and/or carrying such articles as docket, ledgers, and small tools. Although a sedentary job is defined as one which involves sitting, a certain amount of walking and standing is often necessary in carrying out job duties. Jobs are sedentary if walking and standing are required only occasionally and other sedentary criteria are met.

L-LIGHT WORK: Lifting 20 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 10 lbs. Even though the weight lifted may be only a negligible amount, a job is in this category, when it involves sitting most of the time with a degree of pushing and pulling of arm or leg controls.

M-MEDIUM WORK: Lifting 50 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 25 lbs.

H-HEAVY WORK: Lifting 100 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 50 lbs.

V-VERY HEAVY WORK: Lifting objects in excess of 100 lbs. with frequent lifting and/or carrying of objects weighing 50 lbs. or more.

2. Climbing and/or Balancing

(1) Climbing: Ascending or descending ladders, stairs, scaffolding, ramps, poles, ropes, and the like, using the feet and legs and/or hands and arms.

(2) Balancing: Maintaining body equilibrium to prevent falling when walking, standing, crouching, or running on narrow, slippery, or erratically moving surfaces; or maintaining body equilibrium when performing gymnastic feats.

3. Stooping, Kneeling, Crouching, and/or Crawling

(1) Stooping: Bending the body downward and forward by bending the spine at the waist.

(2) Kneeling: Bending the legs at the knees to come to rest on the knee or knees.

(3) Crouching: Bending the body downward and forward by bending the legs and spine.

(4) Crawling: Moving about on the hands and knees or hands and feet.

4. Reaching, Handling, Fingering, and/or Feeling

(1) Reaching: Extending the hands and arms in any direction.

(2) Handling: Seizing, holding, grasping, turning, or otherwise working with the hand or hands (fingering not involved).

(3) Fingering: Picking, pinching, or otherwise working with the fingers primarily (rather than with the whole hand or arm, as in handling).

(4) Feeling: Perceiving such attributes of objects and materials as size, shape, temperature, or texture, by means of receptors in the skin, particularly those of the finger tips.

5. Talking and/or Hearing

(1) Talking: Expressing or exchanging ideas by means of the spoken word.

(2) Hearing: Perceiving the nature of sounds by ear.

6. Seeing: Obtaining impressions through the eyes of the shape, size, distance motion, color, or other characteristics of objects. The major visual functions are defined as follows:

(1) Acuity, far: clarity of vision at 20 feet or more.
Acuity, near: clarity of vision at 20 inches or less.

(2) Depth Perception: three-dimensional vision. The ability to judge distance and space relationships so as to see objects where and as they actually are.

(3) Field of Vision: the area that can be seen up and down or to the right or left while the eyes are fixed on a given point.

(4) Accommodation: adjustment of the lens of the eye to bring an object into sharp focus. This item is especially important when doing near-point work at varying distances from the eye.

(5) Color vision: the ability to identify and distinguish colors.

WORKING CONDITIONS: The physical surroundings of a worker in a specific job. Also known as Environmental Conditions.

1. Inside, Outside, or Both

I-Inside: Protection from weather conditions, but not necessarily from temperature changes.

O-Outside: No effective protection from weather.

B-Both: Inside and Outside.

A job is considered "inside" if the worker spends approximately 75 percent or more of his time inside, and "outside" if he spends approximately 75 percent or more of his time outside. A job is considered "both" if the activities occur inside or outside in approximately equal amounts.

2. Extremes of Cold Plus Temperature Changes

(1) Extremes of Cold: Temperature sufficiently low to cause marked bodily discomfort unless the worker is provided with exceptional protection.

(2) Temperature Changes: Variations in temperature which are sufficiently marked and abrupt to cause noticeable bodily reactions.

3. Extremes of Heat Plus Temperature Changes

(1) Extremes of Heat: Temperature sufficiently high to cause marked bodily discomfort unless the worker is provided with exceptional protection.

(2) Temperature Changes: Same as 2. (2).

4. Wet and Humid

(1) Wet: Contact with water or other liquids.

(2) Humid: Atmospheric condition with moisture content sufficiently high to cause marked bodily discomfort.

5. Noise and Vibration: Sufficient noise, either constant or intermittent, to cause marked distraction or possible injury to the sense of hearing and/or sufficient vibration (production of an oscillating movement or strain on the body or its extremities from repeated motion or shock) to cause bodily harm if endured day after day.

6. Hazards: Situations in which the individual is exposed to the definite risk of bodily injury.

7. Fumes, Odors, Toxic Conditions, Dust, and Poor Ventilation.

(1) Fumes: Smoky or vaporous exhalations, usually odorous, thrown off as the result of combustion or chemical reaction.

(2) Odors: Noxious smells, either toxic or nontoxic.

(3) Toxic Conditions: Exposure to toxic dust, fumes, gases, vapors, mists, or liquids which cause general or localized disabling conditions as a result of inhalation or action on the skin.

(4) Dust: Air filled with small particles of any kind, such as textile dust, flour, wood, leather, feathers, etc., and inorganic dust, including silica and asbestos, which make the workplace unpleasant or are the source of occupational disease.

(5) Poor Ventilation: Insufficient movement of air causing a feeling of suffocation; or exposure to drafts.

GLOSSARY

B

BLEACH--A solution that converts the metallic silver on film to silver salt which is removed during rinsing. Silver must be removed to make the dye image visible.

C

COLOR BALANCE--The adjustment of built-in print machine filters to produce color of equal density and sharpness to match the master test print.

CONTINUOUS PROCESSING--Splicing of film and paper rolls with staples, eyelets, or heat seal to allow for uninterrupted processing.

CROPPING--To cover a portion of a print during printing operation, for the purpose of changing its proportions or composition.

D

DENSITY--Amount of color or black in a negative, positive, or print.

DEVELOPER--A chemical solution which develops the latent image on exposed film.

DODGING--Casting a shadow on a negative to minimize certain portion, using hand or cardboard, during printing operations.

E

EMULSION--Various ingredients are treated and combined to form crystals which are held in suspension by gelatin and produce a light sensitive coating on the film base.

F

FILM STRIP--A roll of film providing 12, 20 or 36 exposures, for example, depending on size of film.

FIXER--A hypo solution that removes the silver halides, allowing the dye image to be seen. Used with color film and paper.

FRAME--One of a series of negatives or positives on a film strip.

FRAMING--Enclosing a print in a flat or folder type cardboard or plastic case to enhance the appearance.

H

HARDENER-FIX--A solution that hardens the emulsion on film after development and fixes the image. Used with color film and paper.

HYPO--A solution of sodium hyposulphite that fixes the image on black and white film, and also on paper.

K

KANGAROO BAG--A dual pocketed envelope used to hold finished prints and negatives.

L

LEADER--A length of blank film or paper attached to the beginning and/or end of film to allow for threading. Also used as fill-in if film or paper breaks during processing.

LIGHT TRAP AREA--An area, sealed off by alternating interlocking doors, which prevents the light from penetrating into the darkroom.

M

MAKE-OVER--Processed prints that fail to meet quality standards for color and density and must be reprinted.

MIS-SORTS--Finished prints and negatives that have been separated from customer's order in error.

MOUNTS--Cardboard supports used to frame and hold slides for protection from fingerprints and scratches.

N

NEGATIVE--An exposed processed film from which the print is produced.

NEGHOLDER--A printing machine accessory that holds the negative in place during printing and allows for better mechanized feeding.

O

OVEREXPOSURE--Exposing photographic material too long to light.

P

PAPER MASK--A printing machine accessory that holds the paper in place as it travels through the machine during the printing process.

POSITIVE--A print reproduced on paper from the negative; or exposed film that is turned to a positive during processing (slide).

PRINTABILITY--To determine after examination if film will produce a picture.

PRINT MARKER--A graphite pencil that places a mark on the back of each print and triggers the knives in the paper cutting machine to cut roll paper into individual prints.

S

SAFELIGHT--A light filter that provides illumination by which photographic material may be used without damaging effects of direct light.

SHORT-STOP--An acid solution that neutralizes the developer and stops the developing action.

T

TRANSPARENCY--Exposed film which is developed to a positive during processing and is viewed by holding up to light. (Often referred to as a slide).

TWINCHECK--Paired gummed labels, each bearing an identical number and used to identify customer containers and contents so as to facilitate matching order with container after processing.

U

UNDEREXPOSURE--To expose photographic material to light for less than the required time.

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Photography in five minutes...without the technicalities

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U.S. Department of Commerce, Bureau of the Census 1963 Census of Business, Washington, D.C.: U.S. Government Printing Office

U.S. Department of Commerce, Business and Defense Services
Administration, U.S. Industrial Outlook 1967, Washington, D.C.:
U.S. Government Printing Office

A number of manufacturers, publishers, and film processing and finishing companies have made technical bulletins available, as well as publications that illustrate types of services and equipment. Among these companies are:

Amphoto, American Photographic Book Publishing Company, Inc.
New York, N.Y.
Custom Craft Color Service, Washington, D.C.
E.I. du Pont de Nemours and Company, Wilmington, Del.
Eastman Kodak Company, Rochester, N.Y.
General Aniline & Film Corporation, Binghamton, N.Y.
Kenro Corporation, Cedar Knolls, N.J.
L.M. Dearing Associates, Inc., Studio City, Calif.
Leedal, Inc., Chicago, Ill.
Medical Metals, Inc., Bronx, N.Y.
Modern Photography, New York, N.Y.
Moore College of Art, Philadelphia, Pa.
National Association of Photo Equipment Technicians,
Washington, D.C.
National Color Laboratories, Roselle, N.J.
New York Institute of Photography, New York, N.Y.
Pako Corporation, Minneapolis, Minn.
Peerless Photo Products, Inc., Shoreham, Long Island, N.Y.
Perfect Film & Chemical Company, Philadelphia, Pa.
Photo Researchers, Inc., New York, N.Y.
Photographic Trade News, New York, N.Y.
Popular Photography, New York, N.Y.
The Photographic Society of America, Philadelphia, Pa.

INDEX OF OCCUPATIONAL TITLES

The titles listed, all in alphabetical order, are presented in three forms:

ALL CAPITAL LETTERS--main titles identifying the job.

all lower case letters--alternate or synonym titles by which a job is also known.

Initial Capital Letters--related titles. These are self-descriptive variations of the jobs with which they are associated.

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