TS-45 October 1981

Federal Wage System
Job Grading Standards

WCPS-2 August 2002

FEDERAL WAGE SYSTEM JOB GRADING STANDARD FOR OFFSET PLATEMAKING, 4416

Workforce Compensation
and Performance Service

Theodore Roosevelt Building 1900 E Street, NW Washington, DC 20415-8330 Classification Programs Division

OFFSET PLATEMAKING, 4416

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WORK COVERED

This standard is used to grade all nonsupervisory work involved in the processing of photographic images onto metal, paper, or plastic plate materials to produce lithographic plates which are used in the offset reproduction of printed matter. Also included is work involved in producing paper or plastic masters using photodirect or electrostatic equipment for the primary purpose of platemaking, as well as other related platemaking processes such as performing color proofing and making peel coats, scribecoats, and hand transfers. This work requires knowledge of the various types of plates, plastic media, processing and developing solutions, platemaking equipment (e.g., vacuum frames, whirling machines, automatic plate processors, photodirect and electrostatic platemaking equipment), and skill in their use to perform platemaking and other related processes necessary in the offset reproduction process.

WORK NOT COVERED

The following kinds of work are not covered by this standard:

- Work involving the preparation of zinc, brass, and copper plates for use in raised process reproducing by letterpress. (See Photoengraving, 4425.)

- Work involving the preparation of forms, molding them into matrices and preparing stereotype plates for press. (See Stereotype Platemaking, 4440.)

- Work involving the preparation of intaglio printing plates by electroforming and chemical process. (See Electrolytic Intaglio Platemaking, 4449.)

- Work involving the preparation of metal templates by photographic methods of transferring drawings to light-sensitized surfaces of metal stock. (See Metal Phototransferring, 3735.)

- Work involving the operation of copier/duplicating equipment (e.g., electrostatic copiers) to produce single and multiple page copies from originals. (See Equipment Operator Series GS-0350).

TITLE

Jobs covered by this standard which involve operating electrostatic and/or photodirect platemaking equipment are to be titled *Platemaking Equipment Operators*.

Other jobs covered by this standard which process photographic images onto paper, plastic, or metal plate materials to produce lithographic plates are to be titled *Platemaker*.

GRADE LEVELS

This standard describes four levels of nonsupervisory offset platemaking work (grades 5, 6, 7, and 8). Depending on the nature of the work performed, any one of these grade levels may represent the highest nonsupervisory level or full performance level of offset platemaking work found in a particular work situation or printing facility.

However, this standard does not describe all possible grades at which jobs may be established in this occupation, or in any way limit the authority of agencies to assign work or particular duties to positions. If jobs differ substantially from the levels of skill, knowledge, and other work requirements of the grade described in this standard, they may warrant grading either above or below these grades, based on the application of sound job grading principles.

NOTE TO USERS

This standard is divided into two parts. Part one covers platemaking equipment operators at grade levels 5 and 6. Part two covers platemaking at grade levels 5, 7, and 8. The grade 7 platemaker as described in the standard represents the full performance level for platemakers in most Federal printing facilities. The type and complexity of work generally produced in these facilities would not normally require platemaking skills and knowledge beyond those described at the grade 7 in this standard.

The grade 8 platemaker as described in this standard is usually found only in map and chart printing facilities due to the nature and complexity of platemaking work and associated duties (e.g., scribe coats and peel coats) normally produced in those facilities.

In some Federal printing facilities, platemakers may perform plate-making equipment operator duties (covered in Part I of the standard) in conjunction with the platemakers duties of their jobs (covered in Part II of the standard). The performance of both kinds of work does not in itself warrant an extra grade.

Positions involving platemaker duties performed in conjunction with regular and recurring duties of another occupation should be titled, coded, and graded in accordance with the "Mixed-Job" policy described in Introduction to the Federal Wage System Job Grading System.

Due to the requirement for accuracy and other quality standards in the printing processes, and the great number of discrete items of information to be conveyed, it is common practice to assign to some senior employees the task of reviewing projects to assure that all assigned work has been performed, that accuracy and other quality standards have been met, and that no errors have been introduced during the process of accomplishing the work. This review and verification work must be graded by reference to the Job Grading Standard for Inspectors.

The review of numerous projects does provide the verifier with a broad understanding of the work of the unit and the capabilities of the other workers. As a result the verifiers are often given additional assignments to evaluate and report on the work of the other employees of the unit or to provide training, advice, and assistance to a small group of employees. If such additional work is performed, it must be graded by reference to Leader, Supervisor, or other appropriate standards in accordance with the procedures for grading mixed jobs under the Federal Wage System.

PART I

4416-5 PLATEMAKING EQUIPMENT OPERATOR, GRADE 5 4416-5

General: The grade 5 platemaking equipment operator operates one or more electrostatic or photodirect platemaking machines to produce offset masters (plates) for use on duplicating presses. Work performed at this level is normally limited to line work and the masters produced are the same size as the copy submitted. There may be occasional requirements in a developmental capacity to produce masters from continuous tone photographs and/or prescreened materials, and perform reductions and enlargements. Some equipment operated at this level has the capability to produce halftone masters.

Skill and Knowledge: At this grade level, the platemaking equipment operator must be adept in the operation of electrostatic and/ or photodirect platemaking equipment and in performing operations such as visually scanning line copy to determine the length of exposure in accordance with equipment manufacturer's operating instructions and whether copy is dense enough to make acceptable masters, setting exposure control, length of master (plate), positioning of material on copy board, and exposing masters.

The equipment operator's skill in using a "proportion wheel" (percentage calculator) to scale copy for reductions or enlargements and varying the aperture control, the length of exposure to compensate for variations in copy (e.g., to hold thin lines or weak image areas, drop blue or grey colors, and shadow lines) and dodging techniques to vary the exposure given different portions of the copy to hold or bring out weak areas of copy.

Responsibility: The grade 5 platemaking equipment operator works from work orders and/or oral instructions from a higher graded equipment operator or supervisor. The equipment operator completes assignments with little or no review of work in process. Completed work is checked by a higher graded equipment operator or the supervisor for quality and compliance with instructions. However, developmental assignments are reviewed in process and upon completion. The equipment operator is responsible for operator maintenance, adjustment, and cleaning of equipment.

Physical Effort: The work requires hand and eye coordination, prolonged standing, bending and reaching. In addition, the work requires frequent lifting and carrying of material weighing up to 14 kilograms (30 pounds) and occasionally heavier than 14 kilograms (30 pounds).

Working Conditions: The work is performed in areas that are well lighted, heated and ventilated. The equipment operator is subject to possible injury to fingers and hands from paper cuts or burns from electrical equipment, and possible eye strain due to glare from high intensity lights on photodirect equipment. In addition, platemaking equipment operators may be subject to noises of nearby running presses.

4416-6 PLATEMAKING EQUIPMENT OPERATOR, GRADE 6 4416-6

General: The grade 6 platemaking equipment operator operates one or more electrostatic or photodirect platemaking machines to produce line and halftone masters (plates). Work performed at this level normally requires frequent enlargement or reduction of copy and may occasionally require multiple exposures. In comparison with the work at the grade 5 level, the work at this level involves a more thorough knowledge of platemaking equipment operations and techniques.

The supervisor checks completed work for quality, adherence to work order requirements and conformity to shop standards.

Skill and Knowledge: In comparison with the grade 5 level, the grade 6 platemaking equipment operator must have greater knowledge and skill in platemaking equipment operating techniques and procedures to accomplish more difficult work. In addition to grade 5 level tasks, such as visually scanning line copy to determine length of exposure in accordance with manufacturer's instructions and positioning material on copy board, the grade 6 equipment operator scans line, continuous tone, and prescreened halftone copy to determine required length of exposure, scales and rules copy for enlargement or reduction, repositions lamps and changes the aperture control as necessary. In comparison to the grade 5, the grade 6 equipment operator must be skilled in dodging and masking techniques, reducing and enlarging copy, varying the aperture control and length of exposure to compensate for variations in copy quality.

Responsibility: The grade 6 platemaking equipment operator works from work orders and receives oral instructions from a platemaker or supervisor, regarding unusual or special requirements. The equipment operator is responsible for the proper positioning and basking of copy on the copy board for work which may require multiple exposures for sheetwise, work-and-turn or work-and-tumble page arrangements. In addition, the operator is responsible for determining the variations needed in lighting for strong or weak copy as well as the variations in the length of exposure needed to compensate for adjustments to the aperture setting. Work is accomplished with little or no review during progress. The supervisor or platemaker reviews completed work for compliance with ticket specifications and oral instructions.

Physical Effort: Physical effort at this grade is the same as that described at grade 5 for platemaking equipment operators.

Working Conditions: Working conditions at this grade are the same as those described at grade 5 for platemaking equipment operators.

PART II

4416-5 PLATEMAKER, GRADE 5 4416-5

General: The grade 5 platemaker follows established procedures to produce line and halftone offset plates (when halftone quality is not a critical requirement) by superimposing photographic negatives or positives onto presensitized or machine coated plates through single flat exposures. The offset plates are used in press operations to produce a variety of printed materials.

The work performed at this level is characterized by repetitive type platemaking consisting of single exposures (i.e., the unexposed plate is exposed to a single film flat) and simple routine alignment of film flats to unexposed plates. The film flat is aligned to the unexposed plate in a vacuum frame and exposed to an artificial light for a predetermined length of time to insure proper exposure of the image. Single film flats may be exposed with a single exposure or through successive exposures using step and repeat methods. The exposed plate is removed from the vacuum frame and developed by the platemaker through the use of a mechanical plate processor or by means of hand development involving the application of chemicals to the plate in proper sequence according to the plate manufacturer's instructions. In addition, the platemaker may be required to operate electrostatic or photodirect platemaking equipment to produce masters (plates) at a comparable level of difficulty.

The grade 5 platemaker works under the close technical supervision of a higher graded platemaker or supervisor.

Skill and Knowledge: The grade 5 platemaker must be familiar with the basic techniques and procedures to produce offset plates requiring single flat exposures of halftone and/or line film negatives or positives. The work requires basic skill in the routine alignment and contact of film flats to unexposed plates or specific areas of the plate while masking off other surface areas to prevent exposure as in the case of "step and repeat" procedures. In addition, the platemaker must be able to develop exposed plates by hand or with a plate processor machine according to established and routine procedures. The grade 5 platemaker must have basic skill in the operation and routine maintenance of platemaking equipment such as vacuum frames, arc lamps, timers, and plate processors.

Platemakers at this level learn which type of plate is better adapted for a particular type of printing job in terms of quantity and image quality. In addition, the platemaker develops skill in working with the different types of plate materials and in the use of gray scales and exposure calculators to insure proper plate exposure. The platemaker must be able to assist higher graded platemakers in plate preparation, setup, exposure, and the development of double and multiple flat exposure plates. In some situations, the platemaker learns related platemaking processes (e.g., color proofing and single step peel coats) as well as mixing light sensitive plate coating solutions, and machine or hand coating plates, and preparing plates for platemaking operations.

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Responsibility: The grade 5 platemaker receives specific instructions from a higher graded platemaker or supervisor in addition to the instructions on work orders accompanying the flats. The instructions are detailed and include specific guidance for platemaking procedures performed at this level. Work is checked during progress and upon completion for conformance to instructions and plate quality. On routine platemaking jobs, the platemaker completed assignments according to detailed instructions and established procedures.

Physical Effort: The work requires hand and eye coordination, prolonged standing, bending, and reaching. Work may require energetic arm movement when plates are processed by hand.

In addition, the work requires frequent lifting and carrying of platemaking materials weighing up to 23 kilograms (50 pounds).

Working Conditions: Hand-cuts may occur when handling plates and skin irritation may result from contact from plate processing chemicals. Possible eye strain may result due to stray glare from high intensity lights used to expose plates. Platemakers may be subject to noises of nearby press operations, as well as exposure to unpleasant odors from chemicals used to develop the plates.

4416-7 PLATEMAKER, GRADE 7 4416-7

General: The grade 7 platemaker uses established procedures for superimposing line, halftone and other images from photographic negatives or positives onto presensitized or machine coated plates through single and double flat exposures to produce offset plates. The offset printing plates are used in subsequent press operations to produce a variety of printed materials.

The type of work operation performed by the grade 7 platemaker involves the visual examination of photographic images for obvious imperfections prior to platemaking (e.g., fogging, lack of density, damaged halftones, pin holes and scratches); plate preparation; proper alignment of plate and flat(s); transferring (burning in) image into the surface coating of the plate (exposing), using a vacuum frame and an artificial light; developing plates with a plate processor or by hand. In comparison to the grade 5 platemaker, the work performed at this level is characterized by single and double flat exposures of line, halftones, and various screens. In addition, the work at this level involves skill in the close alignment (registration) of double and single flats to sensitized plates prior to exposure to produce composite images. There is a critical requirement for clarity of halftones produced at this level. In some work situations the grade 7 platemaker develops skill in performing multiple flat exposures and maintaining hairline [plus or minus .008 cm (.003 inch)] to critical [plus or minus .003 cm (.001 inch) or finer] alignment tolerances as well as other related platemaking processes such as making color proofs, peel coats, and scribecoats.

The grade 7 platemaker receives assignments from a supervisor or in some situations a higher graded platemaker. Work is assigned orally or through work orders accompanying flats.

Skill and Knowledge: The grade 7 platemaker performs platemaking operations such as single and/or double exposures, which require skill in the alignment of flat(s) to plate, variation in lengths of exposure, the use of screen tints, masking, step and repeat procedures, exposing and developing the plate. The platemaker uses a practical knowledge of a variety of presensitized and machine coated printing plates (e.g., paper, metal and plastic) which includes their capabilities in terms of image quality and length of press runs (impressions), exposure rates and their required development processes to produce acceptable images. In comparison to the grade 5, the grade 7 platemaker utilizes skill in varying the length of exposure according to the density of the film positives and/or negatives, ensuring good contact in the vacuum frame between the cover glass and the mask to prevent "Newton Rings" (small rainbow-like circles) or other similar symptoms such as spot or edge halation which may result from overexposure or light deflection. The platemaker is adept in using platemaking equipment and applying developing chemicals in proper sequence to the plate as well as preserving images to be printed.

In some situations such as, map and chart printing facilities, the grade 7 platemaker performs assignments designed to develop progressive skills in platemaking operations requiring multiple flat exposures. This work develops skill in the alignment of flats, masks, screens, and color bars to plates through pin bars, tabs, or other similar devices. In addition, the work develops skill in varying the length of exposures in accordance established procedures, and the use of various

types of screens, masking, and step and repeat procedures in exposing and developing the plate. At this level the platemaker develops skill in varying the length of exposure according to the type, density, and number of film masks per exposure in accordance with standardized times, ensuring good contact in the vacuum frame between cover glass and the film mask, aligning film masks to plate, proper angling of screens and imposition of film masks and color bars, step and repeat exposures with or without templates, and exposing and developing the plates by hand or with a plate processor. The platemaker at this level develops skill in mixing color pigment with sensitized coating solutions according to specific and detailed instructions to meet color specifications for color proofing as well as mixing other solutions for coating and etching. In addition, the platemaker develops skill in the uniform application of sensitized coating solutions by hand or whirler machine. The grade 7 platemaker has a basic understanding of the quality requirements for negatives or positives to insure acceptable plates. In addition, the platemaker has basic skills to correct minor defects in film masks with litho tape or opaquing fluid. The grade 7 platemaker is adept in using platemaking equipment to coat, expose, and develop plates, and perform other related platemaking processes.

Responsibility: The grade 7 platemaker receives assignments from the supervisor through oral and written work orders. In contrast to the grade 5 platemaker who receives specific instructions and detailed guidance on types of plates to be used, exposure settings, proper sequence and application of developing solutions to the plate, the grade 7 platemaker selects the proper type of plate to suit the specific type of work to be performed (e.g., size, long or short press run), determines length of exposure and is responsible for developing plates in accordance with the manufacturers' instructions. The platemaker is responsible for operator maintenance of equipment operated. Routine work is performed in sequence with little or no need for assistance from the supervisor. Completed work is spot checked by the supervisor to insure quality and compliance with work order instructions and established procedures.

In some situations such as "map and chart" facilities, the grade 7 platemaker receives developmental assignments from a higher graded platemaker or supervisor through detailed written and/or oral instructions. The platemaker prepares (roller coats, punches press register slots) the plate according to instructions, adjusts the length of exposure according to the type of work (e.g., line and halftone or a double burn) and number of layers of film to be exposed, checks alignment of film to plate and film to film, and is responsible for exposing and developing plates according to established procedures or plate manufacturer's instructions. Routine work is performed under the general supervision of a higher graded platemaker or supervisor and is checked upon completion for adherence to instructions, established procedures and clarity of exposed images. Developmental work assignments (i.e., multiple flat exposures requiring hairline and critical alignment tolerances) are performed in a training capacity are closely reviewed in process and upon completion.

Physical Effort: The physical effort is similar to that described at grade 5 for platemakers.

Working Conditions: The working conditions are similar to those described at grade 5 for platemakers.

4416-8 PLATEMAKER, GRADE 8 4416-8

General: In comparison with the single and double-exposure type of platemaking performed by the grade 7 platemaker, the grade 8 platemaker performs single, double and multiple flat exposures requiring hairlines [plus or minus .008 cm (.003 inches)] or critical [plus or minus .003 cm (.001 inches) or finer] alignment tolerances of several separate line and halftone negatives (flats), symbol and tint screens, and film masks and traps to a single plate. Also, the platemaker at this level performs other related platemaking processes such as color proofs and chemically etched scribecoats. The image producing materials may be exposed successively using the step-and-repeat, step up, or other combination methods requiring critical alignment of film flats to a base plate in a vacuum frame or table to produce acceptable images. Platemakers visually examine coated plates and materials submitted for platemaking to detect imperfections that must be corrected (e.g., plate scratches, lack of film density, or damaged halftones) prior to exposure and development of the plates. In addition, the grade 8 platemaker, in some situations may coat grained or undrained plastic sheets by hand or whirler for related platemaking processes. In comparison to the grade 7, platemakers at this level perform occasional minor deletions, additions, and corrections to completed plates on or off the printing presses (e.g., marks, spots, missing and broken letters, plugged screens, and broken lines) by using items such as tusche, printing ink, erasers, hones, and needles. The grade 8 platemaker prepares solutions such as preetch, light sensitive coating and developer with day-today variations, depending upon atmospheric conditions in the immediate work area (e.g., temperature or level of humidity).

In comparison to the developmental positions at grade 7, the grade 8 platemaker works with little or no guidance after receiving work assignments. The supervisor or inspector reviews completed work for accuracy and compliance with work order specifications.

Skill and Knowledge: Grade 8 platemakers have the ability to read and interpret work orders and the trade knowledge to select proper type of plate, processes, solutions, and equipment to be used. The platemaker is skilled in the hairline or critical alignment of film flats to the unexposed plate through pin bars, tabs, or other similar devices. In comparison to grade 7 platemakers who follow standard instructions such as the length of exposure, grade 8 platemakers have the skill and knowledge to determine the need for special adaptation or modification of standard operating procedures such as the adjustment of exposure time, taking into consideration the variables of the quality of the negatives, the number of layers of film, and the type of lamp and its distance from the plate. Platemakers at this level are skilled in the uniform application of light sensitive and other coatings to plastic media for use in related platemaking processes (e.g., wet color proofs, peel, and scribecoats), as well as performing chemical etching procedures and coating in proper color sequence for color proofs.

Responsibility: The grade 8 platemaker performs work independents according to work order specifications and is responsible for reviewing the quality and completeness of all image producing materials submitted for platemaking, selecting the proper type of plate, processes, and equipment to be used to produce the required type and quality of plate, and determining the need for special adaptation or modification of standard operating procedures such as the adjustment of

exposure time, taking into consideration the variables of lamp strength, the number and quality of negatives, masks, and screens per exposure. In comparison with the grade 7, the grade 8 platemaker is also responsible for the proper positioning and angling of screens and the precise hairline or critical alignment of multiple film flats, masks, traps, and screens to the base plate prior to exposure, as well as for controlling the lineweights during chemical etching processes.

Completed work is checked for conformance with work order and acceptable trade practices.

Physical Effort: The work requires hand and eye coordination, prolonged standing, bending, and reaching. Work may require energetic arm movement when plates are processed by hand.

In addition, the work requires frequent lifting and carrying of platemaking materials weighing up to 23 kilograms (50 pounds).

Working Conditions: Hand cuts may occur when handling plates and skin irritation may result from contact from plate processing chemicals. Possible eye strain may result due to stray glare from high intensity lights used to expose plates. Platemakers may be subject to noises of nearby press operations, as well as exposed to unpleasant odors from chemicals used to develop the plates.