



## CLASSIFICATION STANDARD

### **DATA PROCESSING**

#### **administrative support category**

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PREFACE

This standard describes the plans to be used in classifying and evaluating positions in the Data Processing Group, and in selecting personnel for appointment to them. The Group consists of two Sub-groups: Data Conversion and Data Production.

The classification and evaluation plans provide a quantitative method for determining the relative value of positions in the group, and the selection plans describe the method to be used for determining the qualifications required of candidates and assessing the extent to which they possess them. Bench-mark position descriptions are provided which serve both as a reference for position evaluation and for selection.

The standard is designed for use by classification officers, staffing officers and line managers who are involved in the classification and staffing of Data Processing Group positions.

It is the responsibility of the line manager to determine and describe the duties and responsibilities of a position, and the qualifications required of its incumbent. During the process the personnel officer will provide advice and assistance to the line manager as required.

Subsequent to the development of a position description it will be the responsibility of the personnel officers to ensure that legislative and delegated authorities are effectively discharged. Wherever feasible the line manager or other line officers should actively participate in the classification and staffing process.

CATEGORY DEFINITION

Occupational categories were repealed by the Public Service Reform Act (PSRA), effective April 1, 1993. Therefore, the occupational category definitions have been deleted from the classification standards.

GROUP DEFINITION

For occupational group allocation, it is recommended that you use the [Occupational Group Definition Maps](#), which provide the 1999 group definition and their corresponding inclusion and exclusion statements. The maps explicitly link the relevant parts of the overall 1999 occupational group definition to each classification standard.



PART I  
POSITION CLASSIFICATION AND EVALUATION PLAN  
DATA CONVERSION SUB-GROUP

INTRODUCTION

This part of the standard consists of an introduction, a definition of the Data Conversion Sub-group, a glossary of terms, factor definitions and point-rating scales. Bench-Mark Position Descriptions are located in Part III.

Point-rating is an analytical, quantitative method of determining the relative value of jobs. It is particularly suited to heterogeneous occupational groups and sub-groups in which the work consists of varied combinations of duties. Point-rating plans define characteristics or factors common to the work being evaluated and define degrees of each factor. Point values are assigned to each degree and the value of each job is the sum of the point values assigned by raters.

All methods of job evaluation require the exercise of judgment and the orderly collection and analysis of job information in order that consistent judgments can be made. The point-rating method facilitates rational discussion and resolution of differences in determining the relative values of jobs.

Factors

The combined factors do not describe all aspects of jobs. They deal only with those characteristics that can be defined, distinguished and measured and that are therefore useful in determining the relative values of jobs. Three factors are used in this plan.

Point Values

In the rating plan, the factors and point values shown below are used.

Factor	PointValues	
	Minimum	Maximum
Skill and Knowledge	80	400
Complexity	80	400
Supervision	10	200
	170	1000

### Bench-mark Positions

Bench-mark position descriptions are used to illustrate the work and exemplify degrees of each factor. Each description consists of a brief summary, duties with the percentage of time devoted to each, and specifications written in terms of the three factors. The bench-mark positions have been evaluated, and the degree and point values assigned to each factor are shown in the specifications.

The rating scales indicate the bench-mark position descriptions exemplifying each degree. These position descriptions serve as sources of reference for validating judgments made in applying the factors provided for the evaluation of positions in this sub-group. Their purpose is therefore to aid raters and ensure consistency in the application of the rating scales.

### Use of the Evaluation Plan

There are five steps in the application of this evaluation plan.

1. The description of duties for a position is studied to ensure understanding of the work. The relation of the position being rated to positions above and below it in the organization is also studied. Allocation of the position to the category, group and sub-group is confirmed by reference to the definitions and descriptions of inclusions and exclusions.
2. Tentative degrees of each factor in the position being rated are determined by comparison of the duties with degree definitions in the rating scales. Uniform application of degree definitions requires frequent reference to the descriptions of factors and the notes to raters.
3. The descriptions of the factor in each of the bench-marks exemplifying the degree tentatively selected are compared with the description of the factor in the position being rated. Comparisons are also made with descriptions of the factor in bench-marks for the degree above and below the one tentatively selected.
4. The point values for all factors are added to determine the tentative total point-rating.
5. The position being rated is compared as a whole with duties of positions to which similar point values have been assigned, as a check on the validity of the total rating.

### Determination of Levels

The ultimate objective of job evaluation is to determine the relative value of jobs in occupational groups so that employees may be paid at rates consistent with the relationship indicated. Jobs defined within a designated range of point values will be regarded as of equal difficulty and value and will be allocated to the same level.

RATING SCALES

FACTOR WEIGHTS

Skill and Knowledge	400
Complexity	400
Supervision	200
	1,000

POINT BOUNDARIES

LEVELS	POINTS
DA-CON 1	170 - 244
DA-CON 2	245 - 354
DA-CON 3	355 - 464
DA-CON 4	465 - 574
DA-CON 5	575 - 684
DA-CON 6	685 - 794
DA-CON 7	795 - 904
DA-CON 8	905 - 1000

SUB-GROUP DEFINITION

The performance or supervision of duties requiring the operation of electro-mechanical data conversion equipment or the operation and control of electronic data conversion stations or systems for the purpose of transferring data from source documents to forms suitable for computer, or auxiliary equipment, processing.

Inclusions

Positions included in this sub-group are those in which one or more of the following duties is of primary importance:

- The operation of numeric and alpha-numeric key-punch equipment to record or verify data on cards.
- The operation of alpha-numeric key-to-tape equipment to record or verify data on magnetic tape via a magnetic disc or drum.
- The operation of direct data entry equipment to transfer data directly to computer.
- The operation of keying equipment for the purpose of converting data processing by an Optical Character Reader.
- The development and implementation of instruction for training data conversion staff to perform their duties.
- The supervision of any of the above duties.

Exclusions

Positions excluded from this sub-group are those allocated to the Data Production Sub-group.

Glossary of Terms

The interpretations to be accorded technical and other terms which appear in the classification standard for the Data Conversion Sub-group are explained in this glossary.

"Application" refers to one or more source documents that are subject to a single set of keying instructions. Applications described as complex are those in which the keying instructions pertain to complex source documents.

"Complex source documents" are characterized by such features as

- the presentation of data in a form not compatible with the encoded recorded layout,
- the presentation of data in program language or symbolic form.

These features, or those of equal complexity, require the location, interpretation and/or coding of information concurrent with the conversion of data. As a consequence, the processing of complex source documents is more demanding of skill and knowledge than is the processing of non-complex source documents.

"Data conversion equipment" refers to data entry equipment as well as electro-mechanical or electronic verification machines and the supervisory console of an electronic data conversion system.

"Data entry equipment" refers to electro-mechanical or electronic keying machines used by a data conversion operator to enter data onto punched cards, or other forms, magnetic tape or into storage prior to processing by a computer or optical character reader.

"Non-complex source documents" are characterized by:

- the presentation of data in a readily discernable form compatible, in most respects, with the encoded record layout. Such documents are most adaptable for high rate conversion production as they minimize the requirement to locate, code or interpret data.

"Source document" refers to the material which presents information for conversion to forms suitable for computer or auxiliary equipment processing. Such material may consist of one or more pages and may or may not be specifically designed for data conversion purposes. In this standard, source documents are described as "complex" or "non-complex" in order to distinguish differing degrees of difficulty encountered in the conversion of data.

DATA PROCESSING  
Data Conversion

"Support equipment" refers to those machines operated by a data conversion operator on a part-time basis as a minor function. It consists of equipment common to a data processing environment such as sorters, collators, reproducers, on-line printers and card readers, communications key-tape equipment, support computers and remote terminals.

"Team" refers to a number of data conversion operators under the guidance of a lead operator.

"Unit" refers to more than one team, or a number of data conversion operators, working under the supervision of a supervisor or assistant supervisor.

SKILL AND KNOWLEDGE FACTOR

This factor measures the difficulty of the work in terms of the skill and knowledge required to operate and to supervise the operation of data conversion and support equipment.

Notes to Raters

The degrees of this factor are exemplified by bench-mark position descriptions. The bench-mark positions are assigned to a degree by considering the following characteristics:

1. The requirement for a knowledge of the operation and capabilities of data conversion equipment.
2. The application of skills necessary for the operation of data conversion equipment.
3. The application of knowledge for such purposes as processing source documents, planning and scheduling work, coordinating and controlling the operations of one or more work units, determining key-stroke rates and participating in the development of formats for source documents, writing operational procedures and data conversion instructions, resolving operator difficulties with respect to source documents and equipment, recruiting or selecting, counseling and training staff, estimating data conversion costs to users, and submitting data and recommendations to senior data processing authority regarding staff and equipment requirements.

Any one characteristic is only an indication of the skill and knowledge required by the work and the whole context within which the work is performed is to be considered.

The degree to be assigned within this factor is to be determined by considering the three broad skill and knowledge areas listed above. The degree tentatively selected is then confirmed by comparing the duties of the position being rated with the duties and specifications of the bench-mark positions.

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RATING SCALE - SKILL AND KNOWLEDGE FACTOR

Skill and Knowledge	Points	Bench-mark Position Description	Page*
1	80	Junior Data Conversion Operator	1.1
		OCR Data Conversion Operator	2.1
2	133	Data Conversion Operator A	3.1
		OCR Data Conversion Lead Operator	4.2
3	186	Data Conversion Lead Operator	5.1
		Data Conversion Operator B	6.2
		Data Conversion System Lead Operator	7.2
		Data Conversion System Supervisor A	8.2
4	239	Data Conversion System Console Operator	9.2
		Data Conversion System Supervisor B	10.3
		Unit Supervisor, Data Conversion	11.2
5	292	Group Supervisor, Data Conversion	13.2
		Data Conversion Unit Supervisor	12.2
6	345	Data Conversion Supervisor	14.4
		Group Head, Data Conversion	15.3
		Data Conversion Section Head	16.3
7	400		

\*All page numbers refer to Part III.

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COMPLEXITY FACTOR

This factor is used to measure the difficulty of the work in terms of the requirement to exercise initiative and judgment and the variety and nature of the duties performed.

Notes to Raters

The factor consists of two elements: "Scope for Initiative and Judgment" and "Variety".

"Scope for Initiative and Judgment" provides four degrees and refers to the requirement to select particular courses of action within the framework of instructions, regulations and established procedures, the availability of direction or supervision, and the degree of authority delegated by supervisors. The criterion for the assignment of a position to a degree is that the duties must include a majority of the characteristics of that degree.

The six degrees of the "Variety" element are illustrated by the bench-mark position descriptions. Characteristics of the work such as the following are to be considered in determining the tentative degree of this element:

- The variety and complexity of equipment operated, supervised or controlled through planning.
- The number and nature of duties performed and the difference of the duties from one another.
- The complexity of applications\* processed or the number of applications supervised or controlled through the supervisory console.
- The degree of fluctuation in workload and staff.

Any one characteristic is only an indication of variety and the whole context within which the work is performed is to be considered.

The degrees of the two elements tentatively selected are to be confirmed by comparing the duties of the position being rated with the duties and specifications of the bench-mark positions that exemplify those degrees tentatively selected.

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RATING SCALE - COMPLEXITY FACTOR

Scope for Initiative and Judgment

Degree of Variety	<p>Methods and procedures are generally prescribed in detail for the operation of data conversion and support equipment.*</p> <p>There is a limited requirement for the exercise of initiative and judgment in the processing of source documents and the operation of support equipment.</p> <p>Supervisory guidance is readily available.</p>	<p>Primary duties require the operation of data conversion equipment, in accordance with methods and procedures that are well-defined, and the provision of guidance to data conversion operators or the operation of support equipment.</p> <p>There is a requirement to exercise initiative and judgment in the interpretation of source documents and data conversion instructions, re-assigning work, and the occasional operation of the supervisory console or support equipment.</p> <p>Supervisory guidance is generally not readily available.</p>	<p>Methods and procedures are well-defined.</p> <p>Initiative and judgment are required in assigning work to operators and in selecting appropriate procedures or courses of action related to resolving problems concerning equipment operation, source data, and daily production schedules.</p> <p>Initiative and judgment are also required in the operation of, or supervising the operation of, the supervisory console and in recommending solutions to problems pertaining to workloads and deadlines.</p>	<p>Initiative and judgment are required in developing, modifying and/or interpreting data conversion instructions and procedures, in developing production standards and in adjusting schedules to meet changing priorities.</p> <p>Initiative and judgment are also required in assigning work, in allocating staff and using equipment to meet production deadlines, in recommending data conversion procedures for new applications in consultation with users, in supervising the operation of the supervisory console, and in organizing and directing on-going operations.</p> <p>Judgment is required in estimating costs of data conversion work to users and in recommending to senior data processing authority changes in equipment, manpower and organization.</p>
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	A	B	C	D	
	Page**	Page**	Page**	Page**	Page *
I	80 Junior Data Conversion Operator OCR Data Conversion Operator A	1.1 2.1			
		150 OCR Data Conversion Lead Operator	4.2		
2	135 Data Conversion Operator A	3.2 Data Conversion Lead Operator	5.2		
		205 Data Conversion Operator B Data Conversion System Lead Operator	6.3 7.2	220 Data Conversion System Supervisor A Data Conversion System Console Operator	8.2 9.3
3		260	275 Data Conversion System Supervisor B Unit Supervisor, Data Conversion	290 Data Conversion Unit Supervisor	12.3
			330	345 Group Supervisor, Data Conversion Data Conversion Supervisor Group Head, Data Conversion	13.3 14.3 15.3
4				400 Data Conversion Section Head	16.3
5					
6					

\*See Glossary of Terms page I-5 \*\*All page numbers refer to Part III.

SUPERVISION FACTOR

This factor measures the nature of supervisory responsibility for the work and the numbers of employees supervised.

Definitions

"Nature of Supervisory Responsibility" refers to the extent to which a supervisory position is responsible for such activities as controlling the quantity and quality of work produced, assigning work, allocating staff, evaluating employee performance, training and disciplining staff and making recommendations on equipment or staff requirements.

"Number of Employees Supervised" refers to the total number of employees for whom the incumbent of the position exercises supervisory control directly or through subordinate supervisors.

Notes to Raters

The two elements of the factor are the nature of supervisory responsibility and the number of employees supervised directly or through subordinate supervisors.

In all positions there is some requirement for showing others how to perform tasks or duties; therefore all positions will be assigned a minimum of 10 points (Degree A<sub>1</sub>) regardless of the number of employees involved.

In rating positions all the characteristics outlined for each degree of the Nature of Supervisory Responsibility element must be considered. The criterion for the assignment of a position to a degree is that the duties must include a majority of the characteristics of that degree.

Occasional supervision, such as that performed during absences of the supervisor on annual or sick leave, is not to be rated.

For the purpose of this plan the number of employees supervised is established by totaling the following:

1. The number of employees for whom the incumbent of the position has continuing responsibility.
2. The number of man-years of work performed by casual, part-time and seasonal employees.
3. The average number of man-years supervised where the work is organized on a project basis and follows a cycle having a duration in excess of a calendar year.

SUPERVISION FACTOR

Nature of Supervisory Responsibility and Degree	Bench-mark Position Descriptions	Page*
Shows other employees how to perform tasks or duties	Junior Data Conversion Operator	1.1
	A OCR Data Conversion Operator	2.1
	Data Conversion Operator A	3.2
Checks work in process or upon completion for adherence to instructions.	OCR Data Conversion Lead Operator	4.2
	Data Conversion Lead Operator	5.2
Assists operator in resolving problems relating to equipment malfunction or data conversion procedures.	Data Conversion System Lead Operator	7.2
	B Data Conversion System Console Operator	9.3
Trains operator to operate equipment, to process applications and follow operating instructions.		
Reports verbally on employee performance.		
Directly assigns work based on knowledge of equipment and operator capabilities.	Data Conversion System Supervisor A	8.3
Monitors the work of operators to ensure maintenance of work standards and priorities.	Data Conversion System Supervisor B	10.3
	Unit Supervisor, Data Conversion	11.3
Reviews work upon completion and accepts or rejects.	C	
Trains operator or lead operator to operate equipment, to process a variety of applications, and to follow a variety of operating instructions.		
Discusses employee performance with supervisor and employee		
Assigns work directly or through subordinate supervisor or supervisors.	Data Conversion Unit Supervisor	12.3
	Group Supervisor, Data Conversion	13.3
Makes short-term allocations of staff between units to cope with changing workload, production delays, changes in job schedules or priorities and absences.	Data Conversion Supervisor	14.5
Establishes and recommends production standards.		
Implements operator training program.	D	
Reports on employee performance and discusses it with senior supervisor, and proposes retention, promotion, incentive pay changes, and disciplinary action or dismissal.		
Processes changes in the number or classification of positions		
Assigns work through sub-supervisors.		
Approves production and quality of work standards.	Group Head, Data Conversion	15.4
Allocates staff between groups or units to meet long term production requirements and to ensure their effective utilization and development.	Data Conversion Section Head	16.4
Plans and develops instruction for training staff to perform their duties.		
Formally evaluates performance of subordinates and discusses evaluation with them.	E	
Interviews employees, for counseling and guidance, and applicants for employment.		
Formally recommends disciplinary action.		
Formally recommends changes in the number and classification of positions.		

\*All page numbers refer to Part III.

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DATA PROCESSING  
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RATING SCALE - SUPERVISION FACTOR

Number of Employees Supervised and Degree	Nature of Supervisory Responsibility and Degree				
	A	B	C	D	E
Any no. of employees	1	10			
1 - 4	2	20	55	90	125
5 - 10	3	35	70	105	140
11 - 30	4	50	85	120	155
31 - 75	5		100	135	170
76 - 125			115	150	185
126 +			130	165	200

PART II  
SELECTION PLAN  
DATA CONVERSION SUB-GROUP

INTRODUCTION

The Selection Plan includes the Selection Standard for this Group developed pursuant to Section 12 of the Public Service Employment Act, with instructions for adapting it to the requirements of individual positions in the form of a Statement of Qualifications.

Section 6 of the Public Service Employment Regulations requires that a Statement of Qualifications be prepared for each position to which an appointment is to be made. Each Statement of Qualifications is to specify and differentiate between those qualifications that are essential and those qualifications, if any, that are desirable for the performance of the duties and responsibilities of a position.

Qualifications refer to any training, ability, knowledge, accomplishment or personal attribute that is essential or desirable for performance of the duties and responsibilities of a position.

As qualifications vary with the job content requirements of individual positions they must be identified for each position for which staffing action is intended. They are to be based on the duties and responsibilities of the position concerned and expressed in the form of a Statement of qualifications. These qualifications then become the criteria against which selections are made for that staffing action.

The following pages contain an explanation of the various parts of a Statement of Qualifications, a description of qualifications for positions in this Subgroup, a Rating Guide and a description of the methods to be used in assessing the qualifications of candidates for these positions. Examples of Statements of Qualifications for positions in this Sub-Group based on Bench-Mark Position Descriptions are presented in Part III of this Standard.

STATEMENT OF QUALIFICATIONS

Structure

The basic structure of a Statement of Qualifications is as follows: ESSENTIAL

QUALIFICATIONS

BASIC REQUIREMENTS

- Education Factor
- Occupational Certification Factor
- Achievement, Skills or Aptitudes Factor
- Language Requirements Factor
- Experience Factor

RATED REQUIREMENTS

- Knowledge Factor
- Abilities Factor
  
- Personal Suitability Factor

DESIRABLE QUALIFICATIONS

- (Individual qualifications that are desirable, if any.)

Definitions

A Statement of Qualifications consists of two components:

ESSENTIAL QUALIFICATIONS - This component provides for the inclusion of qualifications which a person must possess in order to adequately perform the duties and responsibilities of a position. It consists of two sub-components:

BASIC REQUIREMENTS - This sub-component provides for the inclusion of those essential qualifications that are used for initial screening purposes. Applicants must meet the Basic Requirements before consideration can be given to their other qualifications. Basic Requirements are minimum criteria and are not rated by degree. Basic Requirements include the following five Selection Factors:

Education - (a) Refers to a background in academic, vocational or technical studies and training which is recognized through the actual or imminent conferring of a degree, diploma, certificate or other official document by an approved educational institution or agency.

(b) Acceptable performance on tests prescribed by the Public Service Commission may be an alternative, when specified.

Occupational Certification - Refers to the possession of or eligibility for occupational credentials in the form of a license, certificate, registration, letter, papers or other documents which constitute official recognition of occupational competence.

Achievement, Skills or Aptitudes - Refers to special examinations or tests used to assess achievements, skills or aptitudes which are basic to the performance of the duties and responsibilities of a position.

Language Requirement - Refers to the need for a knowledge of either the English language, the French language, either one or the other or both in relation to the duties and responsibilities of a position.

Experience - Refers to actual participation or practice in activities related to the duties and responsibilities of a position. It means the acquisition or exercise of knowledge or abilities in vocational or a vocational circumstances including voluntary work; and it is conditioned by the achievement realized during its acquisition and by the environment in which it is gained. Experience requirements must not be expressed in terms of a specific number of years.

NOTE: Pre-employment medical examination requirements are to be in accordance with Appendix 13 of the Staffing Manual and are not to be included in the Statement of Qualifications.

RATED REQUIREMENTS - This sub-component provides for the inclusion of those essential qualifications which are used for the rating and ranking of candidates who have met the Basic Requirements. Rated Requirements include the following three Selection Factors:

Knowledge - Refers to information concerning facts, theories, systems, practices, regulations and other subject-matter relevant to the performance of the duties and responsibilities of a position.

Abilities - Refers to competence in the use of tools, materials, and equipment or the application of methods, systems, techniques, practices, policies, regulations and other subject-matter relevant to the performance of the duties and responsibilities of a position.

Personal Suitability - Refers to personal traits or characteristics which condition the utilization of knowledge and abilities in the performance of the duties and responsibilities of a position.

DESIRABLE QUALIFICATIONS - This component provides for the inclusion of qualifications which, although not essential, may further contribute to or enhance a candidate's performance of the duties and responsibilities of a position. The use of Desirable Qualifications is optional, but they must not be used for screening purposes. When they are applicable, they are to be included in the Statement of Qualifications at the same time that the Essential Qualifications are specified, and they are to be assessed only as part of the rating and ranking of candidates who have met both the Basic Requirements and Rated Requirements for the position. Any job-related qualifications other than knowledge of a second official language may be used as Desirable Qualifications, but they should be used sparingly, if at all.

SELECTION STANDARD - DATA CONVERSION SUB-GROUP

Qualifications applicable to positions in the Data Conversion Sub-Group are as follows:

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

Education Factor

This factor is applicable to all positions in this Sub-Group.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Education considered necessary.

The minimum education qualification for the Data Conversion Sub-Group is:

- Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.

NOTE: Possession of the "completion of grade ten" qualification is normally to be determined on the basis of information provided on applications or in personal inventories. Further evidence, if required, may be found in documents such as a school leaving certificate or an official school report card.

Achievement, Skills or Aptitudes Factor

This factor is applicable to all positions in this Sub-Group.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Achievement, Skills or Aptitudes considered necessary for Operators or Trainees.

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OPERATORS:

For positions in this Sub-Group requiring skilled data conversion operators, the basic equipment operation skill requirement is:

- Skill in keying alpha-numeric or numeric data completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate.

NOTE: Possession of this qualification is normally determined on the basis of appropriate tests on relevant data conversion equipment, including the PSC Keypunch test. Experienced persons having proven competence on relevant data conversion equipment may be accepted without testing.

TRAINEES:

For positions in this Sub-Group used for Trainees, the basic skill or aptitude requirements are:

Skill in keying alpha-numeric or numeric data, completing at least twenty-five 60 column records in 15 minutes with not more than a 10% error rate; or skill in typing at a speed of at least 25 words per minute with not more than a 2% error rate;

OR

Capacity to learn to operate data conversion equipment.

NOTE: (a) Possession of such Trainees qualifications may be determined on the basis of:

- appropriate tests on relevant data conversion equipment; or
- acceptable performance on PSC Keypunch or Typing Tests; or
- acceptable performance on typing tests used by Canada Manpower Centres; or
- a graduation diploma, a certificate or equivalent document for typing issued by an approved training organization.

(b) Possession of the trainee aptitude qualification may be determined on the basis of:

- achievement of a satisfactory score on an appropriate aptitude test approved for use by the Public Service Commission.

#### Language Requirement

This factor is applicable to all positions in this Sub-Group.

From the qualifications listed below, determine which one is applicable to the position to be staffed.

- A knowledge of the English language is essential for this position.
- A knowledge of the French language is essential for this position.
- A knowledge of either the English language or the French language is essential for this position.
- A knowledge of both the English language and the French language is essential for this position.

#### Experience

This factor is applicable to positions in this Group for which it is considered necessary to have had previous experience related to the duties and responsibilities involved.

Based on the duties and responsibilities of the position include in the Statement of Qualifications a description of the Experience considered necessary. Following is an example of an Experience qualification:

"Experience - Experience in data conversion operations."

- NOTE: (a) To raise Basic Requirements for positions in this Group above the minima prescribed, special permission must be obtained from the Public Service Commission.
- (b) When used in regard to Basic Requirements, terms such as "recognized", "eligibility", "approved", "accredited" or "equivalent" refer to acceptability for staffing purposes as regulated by the Public Service Commission Staffing Program concerned.
- (c) The assessment of Basic Requirements is to be based on performance demonstrations including the use of tests or examinations, educational or occupational credentials, or other evidence available at the time of the screening process.

RATED REQUIREMENTS

Knowledge

This factor is applicable to all positions in this Group, except those used for developing inexperienced personnel where the duties and responsibilities of the position do not warrant use of the Knowledge Factor.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Knowledge considered necessary. Following is an example of a Knowledge Qualification:

Knowledge - Knowledge of source document layouts and production type applications."

Abilities

This factor is applicable to all positions in this Group, except those used for developing inexperienced personnel where the duties and responsibilities of the position do not warrant use of the Abilities Factor.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Abilities considered necessary. Following is an example of an Abilities Qualification:

Abilities - Ability to monitor the processing of work."

Personal Suitability

This factor is applicable to all positions in this Group.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Personal Suitability considered necessary. Following is an example of a Personal Suitability Qualification

Personal Suitability - Initiative and dependability."

DESIRABLE QUALIFICATIONS

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of those qualifications considered desirable, if any. Following is an example of a Desirable Qualification:

"-Experience in preparing cost estimates."

PREPARATION OF A STATEMENT OF QUALIFICATIONS

The steps involved in preparing a Statement of Qualifications are as follows:

1. Gain a thorough understanding of the duties and responsibilities for the position to be staffed.
2. Review this Selection Plan carefully.
3. Examine the examples of Statements of Qualifications presented in Part III of this Standard in order to become familiar with the format and sorts of qualifications required for positions in this Group.
4. Based on the duties and responsibilities of the position, describe the qualifications required for the position under the appropriate Component, Sub-Component, and Selection Factor heading.

NOTE: The examples of Statements of Qualifications provided in this Standard are for illustrative purposes only. It is not necessary, therefore, to adhere to the qualifications specified in the examples when staffing positions on which the Bench-Mark Position Descriptions are based, or when staffing positions of a similar nature.

In determining which qualifications are to be included in the Statement of Qualifications, the prime considerations are:

- (a) their relevancy to the duties and responsibilities of the position;
- (b) their assess ability for selection purposes; and (c) their value in differentiating between candidates.

In arranging qualifications within each Selection Factor they should be laid out in a style and in patterns that:

- (a) combine closely-related qualifications;
- (b) obviate unnecessary duplication and verbiage;
- (c) emphasize salient features; and (d) facilitate assessment and selection.

DATA PROCESSING  
Data Conversion

The completed Statement of Qualifications specifies the qualifications for staffing the position, and the contents are to be used as basis for:

- (a) advertising notices;
- (b) initial screening of applicants;
- (c) developing a selection rating guide; and
- (d) rating and ranking of candidates.

RATING GUIDE

In assessing the qualifications of candidates for a position, a narrative or numerical rating plan may be used.

Following is an illustration of a format for a selection rating guide using qualifications contained in the Example of a Statement of Qualifications for BMPD No. 16. Basic Requirements are not included in the rating guide since, as minimum criteria, they will have been taken into account during the initial screening to determine which applicants were qualified for further consideration. The ranking of the remaining candidates is accomplished through rating them on the Rated Requirements, and the Desirable Qualifications, if any, that are specified in the Statement of Qualifications for the position being staffed.

Suggested Format

ALLOTTED PASS	MAXIMUM
RATING	RATING

A. RATED REQUIREMENTS

Knowledge Factor

Knowledge of:

1. Source document formats and data coding systems.
2. Personnel policies and regulations.

Total Knowledge Factor

Abilities Factor

Ability to:

1. Plan, schedule and allocate work, train operators, re solve operating problems, appraise employees and determine staff requirements.
2. Forecast equipment requirements and plan office lay-out.

ALLOTTED RATING	PASS RATING	MAXIMUM RATING
--------------------	----------------	-------------------

3. Develop procedures and standards
4. Prepare reports, instructions and correspondence.

Total Abilities Factor

Personal Suitability Factor

1. Tact and courtesy particularly in dealing with users and outside contractors.
2. Initiative, dependability and thoroughness.

Total Personal Suitability Factor

Total Rated Requirements

B. DESIRABLE  
QUALIFICATIONS

Experience in

1. Preparing cost estimates.

N/A

Total Desirable Qualifications

DATA PROCESSING  
Data Conversion

ALLOTTED RATING	PASS RATING	<b>MAXIMUM</b> <b>RATING</b>
--------------------	----------------	---------------------------------

Rating for:

Rated Requirements

Desirable Qualifications

COMBINED RATING

COMMENTS

ASSESSMENT INSTRUCTIONS

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

Basic Requirements are assessed as minimum criteria on a pass/fail basis and are not to be rated by degree. Applicants must meet at least the minimum standard required for each applicable Selection Factor, or they are eliminated from further consideration.

RATED REQUIREMENTS

The relative importance of Selection Factors and Qualifications related to the duties and responsibilities of the position being staffed is determined by those administering the selection process. The weightings which may be applied to Selection Factors and Qualifications in the case of a numerical rating plan, and the differences in emphasis which may be assigned to Selection Factors and Qualifications when a narrative rating plan is used, must be applied consistently throughout the assessment process.

In assessing Rated Requirements candidates must achieve an overall pass rating on the aggregate of Qualifications contained within each Selection Factor. Where a numerical rating plan is used candidates must achieve a pass mark of at least sixty percent on each applicable Selection Factor. In the case of a narrative rating plan candidates must meet at least the minimum degree of Qualifications required for each applicable Selection Factor. Candidates who fail to gain an overall pass rating on each applicable Selection Factor are eliminated from further consideration.

DESIRABLE QUALIFICATIONS

Once candidates have met the Rated Requirements, any credit given for Desirable Qualifications specified in the Statement of Qualifications is to be added to the rating for Rated Requirements to reach a composite assessment. As credit given for Desirable Qualifications has an effect on the ranking of individuals, Desirable Qualifications must be assessed with the same care and consistency as that given to Rated Requirements. The total maximum marks allowed for Desirable Qualifications must not exceed ten percent of the total maximum marks allowed for Rated Requirements. This percentage may also serve as a guide in establishing the degree of emphasis that may be given to Desirable Qualifications when a narrative rating plan is used.

PART III  
BENCH-MARK POSITION DESCRIPTIONS  
AND  
STATEMENTS OF QUALIFICATIONS

INTRODUCTION

Bench-Mark Position Descriptions are intended to exemplify the degrees of each classification factor and element in the position classification and evaluation plan. They are based on actual positions allocated to the Data Conversion Sub-Group but, because they serve to exemplify degrees, their value for that purpose continues even when the actual positions undergo changes.

The contents of Bench-Mark Position Descriptions serve to illustrate the type of information used as a basis for the classification of positions and the development of Statements of Qualifications for the selection of people to fill those positions.

Examples of Statements of Qualifications are intended to illustrate the selection factors and qualifications provided for in the selection plan, which are relevant to the Bench-Mark Position Descriptions. When staffing a position on which a Bench-Mark Position Description is based, the example of a Statement of Qualifications provided for that Bench-Mark Position Description may be used as shown or modified to meet current requirements. For other positions, a suitable Statement of Qualifications must be prepared.

BENCH-MARK POSITION DESCRIPTION AND  
STATEMENT OF QUALIFICATIONS INDEX  
DATA CONVERSION SUB-GROUP

In Ascending Order of Point Values

Descriptive Title	BMPD/ S of Q No.	Total Points	BMPD Page*Page*	S of Q Page*
Junior Data Conversion Operator	1	170	1.1	1.2
Junior Data Conversion Operator	1(T)		1.1	1.3
OCR Data Conversion Operator	2	170	2.1	2.2
OCR Data Conversion Operator	2(T)		2.1	3.3
Data Conversion Operator A	3	278	3.1	3.3
OCR Data Conversion Lead Operator	4	303	4.1	4.3
Data Conversion Lead Operator	5	356	5.1	5.3
Data Conversion Operator B	6	401	6.1	6.4
Data Conversion System Lead Operator	7	411	7.1	7.3
Data Conversion System Supervisor A	8	476	8.1	8.4
Data Conversion System Console Operator	9	509	9.1	9.4
Data Conversion System Supervisor B	10	584	10.1	10.4
Unit Supervisor, Data Conversion	11	652	11.1	11.4
Data Conversion Unit Supervisor	12	740	12.1	12.4
Group Supervisor, Data Conversion	13	772	13.1	13.4
Data Conversion Supervisor	14	810	14.1	14.6
Group Head, Data Conversion	15	860	15.1	15.5
Data Conversion Section Head	16	985	16.1	16.5

\*All page numbers refer to Part III.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 1

Level: 1

Descriptive Title: JUNIOR DATA CONVERSION  
OPERATOR

Point Rating: 170

Summary

Under the supervision of the Data Conversion Supervisor, operates an alpha-numeric key station to record, and verify, data onto magnetic drum from mainly non-complex source documents\*, and performs related duties.

Duties % of Time

Operates an alpha-numeric data conversion key station to record, and verify, data onto magnetic drum from source documents of mainly non-complex applications. 95

Maintains records of work processed, occasionally shows other employees how to perform tasks, and performs other duties. 5

Specifications Degree Points

Skill and Knowledge

The work requires the ability to operate an alpha-numeric data conversion key station to record, and verify, data onto magnetic drum. A good knowledge of key station capabilities and the non-complex source documents processed by the unit\* is required in order to record and verify data. 1 80

Complexity

The work requires the operation of an alpha-numeric data conversion key station to record, and verify, data from mainly non complex source documents. Detailed data conversion instructions are provided for all applications. There is little scope for initiative and judgment. The supervisory guidance of a lead operator is readily available. A<sub>1</sub> 80

Supervision

Shows other employees how to perform tasks or duties. A<sub>1</sub> 10

\*See Glossary of Terms page I-5

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 1: JUNIOR DATA CONVERSION OPERATOR (DA-CON-1)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the French language is essential for this position.  |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Abilities            | - Ability to maintain records of work.    |
| Personal Suitability | - Alertness, persistence and reliability. |

NOTE: The above example is for an experienced operator; see next page for an example of trainee requirements.

EXAMPLE OF A STATEMENT  
OF QUALIFICATIONS FOR

B.M.P.D. No. 1: JUNIOR DATA CONVERSION OPERATOR (DA-CON-1)  
(For selection of Trainees)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.   |
| Achievement, Skills or Aptitudes | - Skill in keying numeric data, completing at least twenty-five 60 column records in 15 minutes with not more than a 10% error rate, or skill in typing at a speed of at least 25 words per minute with not more than a 2% error rate. |
| Language Requirement             | - A knowledge of the French language is essential for this position.   |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Abilities            | - Ability to maintain work records.       |
| Personal Suitability | - Alertness, persistence and reliability. |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 2

Level: 1

Descriptive Title: OCR DATA CONVERSION  
OPERATOR

Point Rating: 170

Summary

Under the supervision of the Supervisor, OCR Data Conversion Unit, operates an OCR Selectric Data Conversion machine to record numeric data from non-complex source documents\*; visually verifies the coded data, and performs other duties.

Duties	% of Time
Operates an OCR Selectric Data Conversion machine to record numeric data from non-complex source documents onto single and two-part continuous forms in special font to be read by an optical character reader.	75
Visually verifies the work recorded by other operators.	20
Performs other duties such as maintaining records of work produced and verified.	5

Specifications	Degree	Points
<p>Skill and Knowledge</p> <p>The work requires the ability to operate an OCR Selectric Data Conversion machine to record numeric data onto continuous paper forms and to visually verify data. A good knowledge of the operation of the equipment and of the non-complex source documents processed by the unit is required in order to record and verify data.</p>	1	80
<p>Complexity</p> <p>The work requires the operation of an OCR Selectric Data Conversion machine to record data from non-complex source documents. Detailed instructions are provided for the conversion of all data. There is little scope for initiative and judgment. The supervisory guidance of a lead operator is readily available.</p>	A1	80
<p>Supervision</p> <p>Shows other employees how to perform tasks or duties.</p>	A1	10

\*See Glossary of Terms page I-5

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS

FOR

B.M.P.D. No. 2: OCR DATA CONVERSION OPERATOR (DA-CON-1)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position.                           |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Abilities            | - Ability to verify data visually.<br>- Ability to maintain work records. |
| Personal Suitability | - Alertness, persistence and reliability.                                 |

NOTE: The above example is for an experienced operator; see next page for an example of trainee requirements.

EXAMPLE OF A STATEMENT OF QUALIFICATIONS FOR

B.M.P.D. No. 2: OCR DATA CONVERSION OPERATOR (DA-CON-1)  
(For Selection of Trainees)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.   |
| Achievement, Skills or Aptitudes | - Skill in keying numeric data, completing at least twenty-five 60 column records in 15 minutes with not more than a 10% error rate, or skill in typing at a speed of at least 25 words per minute with not more than a 2% error rate. |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position.  |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Abilities            | - Ability to maintain work records.      |
| Personal Suitability | - Alertness, persistence and reliability |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 3

Level: 2

Descriptive Title: DATA CONVERSION OPERATOR A

Point Rating: 278

Summary

Under the general supervision of the Assistant Data Conversion Supervisor, operates alpha-numeric key-punch and verification machines to record, and verify, data onto punch cards from mainly complex source documents\*; prepares program drum cards and performs related duties.

Duties	% of Time
Operates a variety of alpha-numeric key-punch and verification machines to record, and verify, data onto punch cards from source documents of mainly complex applications.	85
Prepares program drum cards for all applications processed.	10
Shows other employees how to perform tasks, maintains records of daily production and errors detected, occasionally performs the duties of a lead operator or assistant supervisor, and performs other duties.	5

Specifications	Degree	Points
<p>Skill and Knowledge</p> <p>The work requires the ability to operate alpha-numeric key-punch and verification machines to record, and verify, data onto punch cards. A thorough knowledge of machine capabilities and the complex and non-complex source documents processed by the unit* is required in order to record and verify data, to detect data presentation or coding errors, and to prepare program drum cards for the efficient keying of data.</p>	2	133

\*See Glossary of Terms page I-5

	Degree	Points
Complexity		
The work requires the operation of alpha-numeric key-punch machines to record, and verify, data from mainly complex source documents. Detailed data conversion instructions are normally provided but the ability to work from general written or verbal instructions is required. There is a limited requirement for the exercise of initiative and judgment in the preparation of program drum cards, the coding of data while keying, and keying data from general instructions. The supervisory guidance of a lead operator is available.	A <sub>2</sub>	135
Supervision		
Shows other employees how to perform tasks or duties.	A <sub>1</sub>	10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS

FOR

B.M.P.D. No. 3: DATA CONVERSION OPERATOR A (DA-CON-2)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the English language is essential for this position.   |
| Experience                       | - Experience as a data conversion operator.   |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Abilities            | - Ability to record and verify data onto punch cards from complex source documents.<br>- Ability to prepare program drum cards.<br>- Ability to interpret written and verbal instructions. |
| Personal Suitability | - Alertness, thoroughness and dependability.   |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 4

Level: 2

Descriptive Title: OCR DATA CONVERSION LEAD  
OPERATOR

Point Rating: 303

Summary

Under the supervision of the Supervisor, OCR Data Conversion Unit, operates an OCR Selectric Data Conversion machine to record numeric data from non-complex source documents\*; provides guidance to 4 OCR data conversion operators; visually verifies recorded data, and performs other duties.

Duties	% of Time
Operates an OCR Selectric Data Conversion machine to record numeric data from non-complex source documents onto single and two-part continuous forms in special font to be read by an optical character reader.	70
Provides guidance to 4 OCR data conversion operators engaged in the recording and visual verification of data from a variety of non-complex source documents	
- by instructing new operators on the procedures to be used in recording and verifying data from source documents and on the operation of the equipment,	15
- by resolving data conversion problems encountered by operators, and	
- by reporting to the supervisor on the performance of operators.	
Visually verifies the work recorded by operators.	5
Performs other duties such as maintaining records of the production and error rate of operators, and assuming the duties of the Unit Supervisor as required.	10

\*See Glossary of Terms page I-5

Degree Points

Specifications

Skill and Knowledge

The work requires a thorough knowledge of the operation of an OCR Selectric Data Conversion machine in order to operate the equipment and to provide guidance to, and on-the-job training of, operators. A knowledge of the source documents processed by the team and of the relevant keying instructions is also required.

2 133

Complexity

Judgment is required in providing guidance to operators regarding operating problems and the processing of source documents. The work requires the operation of an OCR Selectric Data Conversion machine to record and verify data from non-complex source documents.

B<sub>2</sub> 150

Supervision

Guidance is provided to 4 OCR data conversion operators. Assistance is provided to operators to resolve operating problems and problems regarding the processing of source documents. New operators are trained in the operation of the equipment and to follow keying instructions. Reports verbally to the supervisor regarding operator performance.

B<sub>2</sub> 20

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 4: OCR DATA CONVERSION LEAD OPERATOR (DA-CON-2)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position.                            |
| Experience                       | - Experience as a data conversion operator.   |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Abilities            | - Ability to verify work visually and maintain production records.<br>- Ability to instruct and assist operators in equipment operation and procedures. |
| Personal Suitability | - Effective interpersonal relationships.<br>- Alertness, thoroughness and dependability.  |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 5

Level: 3

Descriptive Title: DATA CONVERSION LEAD  
OPERATOR

Point Rating: 356

Summary

Under the supervision of the Assistant Supervisor, operates key-punch equipment to record and verify data from mainly complex source documents\*; provides guidance to 3 key-punch and verification operators, and performs other duties.

Duties

% of Time

Operates a key-punch and verification machine to record and verify data onto punch cards from mainly complex applications.

80

Provides guidance to 3 key-punch and verification operators engaged in recording and verifying data from a variety of complex and non-complex applications

- by instructing operators on the procedures to be used in recording and verifying a new application,
- by resolving problems regarding source documents, keying instructions and equipment malfunction, and
- by providing on-the-job training of new operators.

15

Maintains records of jobs completed and errors detected, and performs other duties.

Specifications

Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of key-punch and verification machines in order to operate the equipment and to provide guidance to, and on-the-job training of, operators. A thorough knowledge of the complex and non-complex source documents processed by the team is required in order to record and verify data and to assist operators.

3

186

\*See Glossary of Terms page I-5

	Degree	Points
Complexity		
Judgment is required in interpreting data from complex source documents, in providing guidance to operators with respect to the operation of key-punch equipment and the interpretation of data and keying instructions when processing applications. The work requires the operation of data conversion equipment to record and verify data from mainly complex source documents.	B <sub>2</sub>	150
Supervision		
Guidance is provided to 3 key-punch and verification operators. Assistance is provided to operators to resolve operational problems and problems regarding keying instructions and the interpretation of source documents. Operators are trained to operate key-punch and verification equipment and to follow keying instructions.	B <sub>2</sub>	20

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 5: DATA CONVERSION LEAD OPERATOR (DA-CON-3)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the English language <b>is</b> essential for this position.  |
| Experience                       | - Experience in data conversion operations.   |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of complex and non-complex source documents.   |
| Abilities            | - Ability to maintain production records.<br>- Ability to provide instruction and guidance to other operators. |
| Personal Suitability | - Effective interpersonal relationships.<br>- Alertness, thoroughness and dependability.                       |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 6

Level: 3

Descriptive Title: DATA CONVERSION  
OPERATOR B

Point Rating: 401

Summary

Under the general supervision of the Computer Terminal Supervisor, is responsible for the operation of alpha-numeric key-punch and verification machines to record, and verify, data onto punch cards from a variety of complex\* and non-complex\* source documents; prepares program drum cards; operates with limited supervision a remote job entry terminal; maintains a daily log of computer and terminal usage and performs other duties.

Duties	% of Time
- Operates alpha-numeric key-punch machines to record, and verify, data onto punch cards from a variety of complex an non-complex source documents.	50
- Prepares program drum cards for complex applications.	5
- Operates with limited supervision a remote terminal consisting of card processor with plug board* and memory and key board terminal.	
- by performing minor sorting* and editing* utility functions and dumping information on file,	
- by installing the terminal's plug board, selecting and mounting paper, forms and carriage control tapes, starting and stopping processing, and selecting and loading cards into the card hopper,	25
- by resolving machine problems such as card jams and loose plug board terminals or describing problems to the customer engineer, and	
- by scanning print-outs for completeness, accuracy and legibility.	

% of Time

- Maintains daily log of computer and terminal usage
  - by recording data concerning processing time on jobs processed,
  - by recording information on computer down-time and usage, and
  - by typing credit requests to supplier for system malfunctions.
  
- Assists in the coding of input documents and quality control of output, in the maintenance of a program and procedures documentation library, and performs minor typing duties.

Specifications Degree Points

Skill and Knowledge

The work requires the ability to operate alpha-numeric key-punch and verification machines to record, and verify, data onto punch cards. A thorough knowledge of machine capabilities and the complex and non-complex source documents processed is required to efficiently record and verify data. The ability to operate a remote job entry terminal and to understand the functions of the various keys and special cards involved with submitting jobs and inquiring of their status is also required. An understanding of the remote computer service is required in order to compile utilization reports and credit requests. Typing and clerical skills are required in assisting in the maintenance of a program and procedures documentation library and in the preparation of credit requests to the supplier. A knowledge of the data flows in the applications processed is necessary to assist in coding data and in quality control of the computer runs.

3 186

Degree    Points

Complexity

There is a requirement for the exercise of initiative and judgment in the interpretation of verbal and written instructions, the preparation of program drum cards, the coding of data, resolving problems with the operation of the remote terminal, in daily scheduling of jobs for efficient processing, and in performing the clerical duties associated with the maintenance of the program and procedures documentation library. The work requires the operation of alpha-numeric key-punch machines to record and verify data from a variety of complex and non-complex source documents. The work also requires the operation of a remote job entry terminal to process jobs and to run small utility programs. Supervisory guidance is not always readily available.

B<sub>3</sub>        205

Supervision

Shows other employees how to perform tasks or duties.

A<sub>1</sub>        10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 6: DATA CONVERSION OPERATOR (DA-CON-3)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the French language is essential for this position.  |
| Experience                       | - Experience in performing clerical duties.   |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Knowledge            | - Knowledge of complex and non-complex source documents.  |
| Abilities            | - Ability to operate a remote job entry terminal.<br>- Ability to prepare program drum cards for complex applications.<br>- Ability to maintain a daily log of computer and terminal usage. |
| Personal Suitability | - Alertness, initiative and reliability.  |

DATA PROCESSING  
Data Conversion  
B.M.P.D. No. 7

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 7

Level: 3

Descriptive Title: DATA CONVERSION SYSTEM  
LEAD OPERATOR

Point Rating: 411

Summary

Under the supervision of a Data Conversion System Supervisor, operates a Data Conversion key station; provides guidance to 3 key station operators; occasionally operates the supervisory console and performs other duties.

Duties % of Time

Operates a Data Conversion System key station to record, and verify, data onto disc storage from mainly complex source documents.\* 75

Provides guidance to 3 key station operators engaged in recording and verifying data from a variety of applications

- by instructing operators on the procedures to be used in recording and verifying a new application,
- by assisting operators to recover from error conditions,
- by resolving problems regarding source documents and keying instructions, 15
- by re-assigning work in accordance with changing priorities, and
- by providing on-the-job training of new operators.

Occasionally operates the supervisory console to transfer stored data from disc to tape, deletes completed work from the disc, translates control formats, controls key station status, and performs other duties. 10

\*See Glossary of Terms page I-5

Degree Points

Specifications

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of a Data Conversion System key station and the source documents processed in order to operate a key station and to provide guidance to, and on-the-job training of, operators. A knowledge of the Data Conversion System supervisory console is required as a back-up operator to the system supervisor. The ability to follow written and oral instructions and to make decisions accordingly is also required.

3 186

Complexity

Judgment is required in interpreting data from complex source documents when operating a key station, in providing guidance to operators with respect to key station operating problems and the interpretation or processing of applications. The work requires the operation of a Data Conversion System key station and, on occasion, the operation of the supervisory console.

B<sub>3</sub> 205

Supervision

Guidance is provided to 3 key station operators. Assistance is provided to operators to resolve operational problems and problems regarding keying instructions and the interpretation of source documents. Operators are trained to operate a key station and to follow keying instructions. Provides verbal assessment to Supervisory on operator performance.

B<sub>2</sub> 20

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 7: DATA CONVERSION SYSTEM LEAD OPERATOR (DA-CON-3)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.   |
| Achievement, Skills or Aptitudes | 1<br>- Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the English language is essential for this position.  |
| Experience                       | - Experience in data conversion operations.  |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of complex and non-complex source documents.   |
| Abilities            | - Ability to instruct operators in procedures for new applications and to assist operators particularly in recovering from error conditions. |
| Personal Suitability | - Effective interpersonal relationships.<br>- Initiative and dependability.  |

DESIRABLE QUALIFICATIONS

- Experience in operating a supervisory console.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 8

Level: 4

Descriptive Title: DATA CONVERSION SYSTEM  
SUPERVISOR A

Point Rating: 476

Summary

Under the general supervision of the Group Supervisor, controls the operation of a Data Conversion System to capture data for computer processing; maintains records of work processed; provides guidance to 8 key station operators to develop their skill and efficiency, and performs other duties.

Duties

% of Time

Controls the operation of a Data Conversion System in order to ensure the efficient capturing of data for computer processing

- by activating the system's power supply,
- by loading tape on magnetic tape unit,
- by keying formats into disc storage,
- by communicating with the system by the supervisory key station to perform such functions as determining batch status and production statistics, clearing batch data from disc, deleting or amending formats, recording beginning or ending tape labels, dumping data from disc to tape, and dumping tape to disc to up-date or amend files,
- by inserting read-write ring on input tape,
- by preparing back-up tape as required,
- by determining reasons for system malfunctions and taking corrective action when possible, and
- by closing down the system at end of day.

65

Maintains records of batches processed to ensure processing of all work

- by recording information to identify batches to be processed,
- by receiving completed batches from operators, and
- by recording completion data and date transferred to tape.

15

Provides guidance to 8 key station operators to develop their skill and efficiency

% of Time

- by assigning work in accordance with operator abilities and changing priorities,
- by explaining format and keying instructions for new applications,
- by resolving operator problems regarding interpretation of data on source documents and key station operating problems, 15
- by training new operators, and
- by appraising operator performance and discussing with Group Supervisor and employee.

Performs other duties such as operating a key station as required, ensuring that equipment is in operating condition and assuming the position of Group Supervisor as directed by the Data Conversion Supervisor. 5

Specifications

Degree Points

Skill and Knowledge

The work requires a knowledge of the operation and capabilities of the Data Conversion System key station in order to operate a key station, to train staff and to assist operators in resolving operating problems. A knowledge of the operating and control function of the supervisory key station is required in order to control the input and output of data to disc storage. A knowledge of work priorities and of operator capabilities is also required in order to re-assign work. 3 186

Complexity of Work

Methods and procedures are well-defined concerning the processing of applications and the operation of the supervisory key station. Initiative and judgment are required in re-assigning work in accordance with changing priorities, in assisting operators with problems regarding source documents and operating difficulties and in the operation of the supervisory key station. The work requires the operation of the key station and of the supervisory key station. Approximately 15 applications are controlled through the supervisory key station at one time. Workload and staff of 8 operators remains fairly constant. C<sub>3</sub> 220

Degree    Points

Supervision

Provides guidance to 8 key station operators. Trains operators on equipment and to process new applications. Assists operators in resolving equipment problems and in following keying instructions. Ensures adherence to production standards and appraises operator performance.

C<sub>3</sub>            70

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 8: DATA CONVERSION SYSTEM SUPERVISOR A (DA-CON-4)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                   |   |
|-----------------------------------|---|
| Education                         | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills_ or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| _Language Requirement             | - A knowledge of both the English language and the French language is essential for this position.                                  |
| Experience                        | - Experience in operating a supervisory console.  |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Knowledge            | - Knowledge of the operation and maintenance of a Data Conversion system.   |
| Abilities            | - Ability to schedule and assign work in accordance with changing priorities, and maintain records of work processed.<br>- Ability to train staff and assist operators in resolving operating problems. |
| Personal Suitability | - Effective interpersonal relationships.<br>- Initiative and reliability.   |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 9

Level: 4

Descriptive Title: DATA CONVERSION SYSTEM  
CONSOLE OPERATOR

Point Rating: 509

Summary

Under the general supervision of the Unit Supervisor, controls the operation of the supervisory console of an electronic data conversion system; maintains records of work processed; and performs other duties.

Duties

% of Time

Controls the operation of a 24-station data conversion system, in order to transfer data to tape for processing by computer

- by dumping drum contents to magnetic tape from night operations, initializing the drum, and loading the previous day's unpeeled data onto drum,
- by inserting read-write ring and mounting magnetic tape on tape drive,
- by entering data conversion control programs into drum storage via the designated key station,
- by monitoring the rate of data entry to enable the continuous entry of data to drum by key station operators,
- by checking data entry and verification lot cards to determine batches ready for peeling,
- by communicating with the system via the console to confirm listing of completed batches,
- by peeling several times a day, completed batches to magnetic tape,
- by assisting key station operators to resolve data entry operating problems,
- by operating the supervisory console to enter the system master program if necessary, to obtain operator production statistics, to release peeled data from the drum and to restore contents of magnetic tapes to drum memory as required, and

65

% of Time

- by resolving system error conditions and malfunctions when possible, and recovering from system failures by entering the "boot-strap" or a series of digital commands through the Central Processing Unit to reactivate the system.

Maintains records of work processed to ensure the efficient and timely conversion of data

- by arranging source documents into predetermined batch sizes,
- by recording identifying information of batches,
- by labeling magnetic tapes to identify tape and encoded data, and
- by recording completion dates and returning completed batches and magnetic tapes.

20

Performs other duties such as assisting with special data conversion projects and assuming the duties of the Unit Supervisor as required.

15

Specifications

Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of the data conversion system and an ability to operate the supervisory console and the designated key station in order to facilitate the entry of data to the system, to efficiently transfer data from drum to magnetic tape for processing by computer, and to enter control programs onto drum. An understanding of the operation of the Central Processing Unit is required in order to resolve system malfunctions and to operate the supervisory console after modifications or changes to the system software. A knowledge of the applications processed is required in order to enter and modify control programs. The work also requires a knowledge of the work flow control procedures in order to monitor the processing of work through the unit and to identify the status of work in process. The maintaining of records of work in process requires a high degree of accuracy in order to ensure that all data pertaining to applications is processed.

4 239

Degree Points

Complexity

Methods and procedures are well-defined concerning the operation of the data conversion system. Initiative and judgment are required in the operation of the console in order to control the work processed by the system, to minimize the loss of data entered into the system, to ensure the continuous entry of data and to cope with system malfunctions and modifications and changes to the system software. The work requires the operation of the supervisory console and the master key station of a 24-key station data conversion system. Approximately 30 applications are controlled through the supervisory console on a daily basis. Batches of work processed by operators and the transfer of data to magnetic tape are recorded for control purposes to ensure proper job identification on external magnetic tape labels.

C<sub>3</sub> 220

Supervision

Trains employees to operate the supervisory console and the master key station, and assists 24 operators in resolving problems of entering data to the data conversion system. Reports verbally to the Unit Supervisor on operator performance.

B<sub>4</sub> 50

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 9: DATA CONVERSION SYSTEM CONSOLE OPERATOR (DA-CON-4)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position.                                 |
| Experience                       | - Experience in operating a supervisory console.  |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of procedures to transfer data from drum to magnetic tape for processing by computer.  |
| Abilities            | - Ability to monitor the processing of work.<br>- Ability to train employees to operate a supervisory console and a master key station, assess their performance, and assist them in resolving work problems.<br>- Ability to maintain records of work in process. |
| Personal Suitability | - Initiative, judgment and alertness.<br>- Effective interpersonal relationships.  |

BENCH-MARK POSITION. DESCRIPTION

Bench-mark Position Number: 10

Level: 5

Descriptive Title: DATA CONVERSION SYSTEM  
SUPERVISOR B

Point Rating: 584

Summary

Under the general supervision of the Data Conversion Supervisor, controls the operation of an 8-station Data Conversion System; reviews, corrects and prepares source documents for processing by key station operators; supervises 8 key station operators in order to provide efficient use of staff and equipment in meeting production requirements; assists in the administration of the unit; and performs other duties.

Duties

% of Time

Controls the operation of an 8-station Data Conversion System and 2 remote key stations to enter data for storage on magnetic drum and transfer to magnetic tape

- by planning the assignment of work to operators to maintain continuous production,
- by communicating with the system by keying coded commands on the control console to extract information concerning work in process and operator production statistics,
- by "peeling", several times a day, verified records from the magnetic drum to magnetic tape,
- by performing a drum dump to transfer data from the storage drum to magnetic tape when the system is reactivated, and
- by resolving system malfunctions where possible.

35

Reviews, corrects, prepares and controls source documents for processing

- by documenting the receipt of incoming source documents,
- by resolving source document problems relating to illegible and incomplete data and errors in coding,
- by analyzing source documents and record formats in order to prepare control programs,

30

% of Time

- by arranging source documents into batches of equal workload based on legibility, number of entries and record length,
- by assigning code numbers to batches for document control purposes, and
- by checking off and returning processed source documents to originators.

Supervises 8 key station operators in order to ensure effective utilization of staff

- by assigning work to meet established or adjusted daily work schedules,
- by compiling and analyzing operator production statistics, 15
- by training staff in methods and procedures to operate a key station, and
- by instructing staff in special applications, new equipment or procedures.

Assists in the administration of the Unit in order to maintain an effective data processing service

- by recording and reviewing application statistics to prevent incomplete data being submitted for computer processing,
- by writing monthly reports detailing the activities of the Unit and explaining anomalies indicated by production statistics, 10
- by participating in discussions with supervisor, systems analysts and users concerning source documents design and data preparation methods, and
- by recommending changes to keying instructions.

Performs other duties such as acting as Supervisor in the absence of the Data Conversion Supervisor, occasionally preparing keying instructions and operating a key station or key-punch machine for complex applications, experimental runs or to meet pressing deadlines. 10

Specifications

Degree Points

Skill and Knowledge

The work requires knowledge of the operation and capabilities of an 8-station Data Conversion System and the capabilities of operators in order to assign work, train staff, operate the control console and to analyze operational problems in the system. A knowledge of user requirements is necessary in order to make recommendations concerning source document design and data preparation methods and to detect errors in coding and data presentation. The work also requires a knowledge of the applications processed in order to prepare keying instructions and control programs and to assist operators with problems in converting data: The ability to operate a key station and key-punch and verification equipment is also required in order to prepare the occasional special application.

4 239

Complexity

Initiative and judgment are required in reviewing, correcting and preparing source documents for processing and in assigning work in order to process data most effectively and to meet established or adjusted daily work schedules. Initiative and judgment are also required in operating the control console to avoid the loss of data and in resolving operational problems with the system. The work requires the operation of the control console, the supervision of the 8-station system as well as the ability to operate a key station or keypunch equipment as required. Approximately 10 applications are processed on a continuing basis. Workload and staff remain fairly constant.

275

Supervision

The work requires the supervision of 8 key station operators. Supervisory responsibilities involve assigning work, training and instructing staff and monitoring operator performance.

3

70

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS

FOR

B.M.P.D. No. 10: DATA CONVERSION SYSTEM SUPERVISOR B (DA-CON-5)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the English language is essential for this position.   |
| Experience                       | - Experience in supervising data conversion operators.  |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of the capabilities of a data conversion system.<br>- Knowledge of source document design and data presentation methods.  |
| Abilities | - Ability to correct and prepare source documents for processing.<br>- Ability to operate a control console.<br>- Ability to schedule and assign work, and ability to compile statistics, and prepare instructions, reports and correspondence. |

Personal Suitability

- Tact and courtesy particularly in dealing with systems analysts and users.
- Initiative and dependability.

DATA PROCESSING  
Data Conversion  
B.M.P.D. No. 11

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 11

Level: 5

Descriptive Title: UNIT SUPERVISOR,  
DATA CONVERSION

Point Rating: 652

Summary

Under the general supervision of the Group Supervisor, controls and supervises the activities of a unit of 21 data conversion equipment operators and a data control officer, and performs other duties.

Duties

% of Time

Controls the activities of data conversion equipment operators and lead operators engaged in the conversion of data to machine-readable form from 86 complex and non-complex applications

- by reviewing keying instructions to ensure correctness,
- by estimating job completion times,
- by advising the Group Supervisor regarding the development of keying instructions and established production rates as required,
- by acting as liaison with users and schedulers to resolve problems relating to source documents, sample verification procedures, scheduling and work loads, 55
- by resolving operator problems, referred by the lead operators, regarding the interpretation of source data, keying instructions and equipment malfunction,
- by reviewing operator work records for errors, and
- by maintaining records of jobs in process to ensure completion and timeliness of work processed, and to serve as a basis for performance evaluation.

Controls the activities of the Data Control Officer engaged in monitoring the work-flow through the unit

- by reviewing procedures and techniques for maintaining control of work in process, 10

% of Time

- by reviewing log books to determine work progress, and
- by resolving problems referred by the Data Control Officer regarding availability of source material, through-put of the unit, and assembly and delivery of completed work and source documents.

Supervises 18 data conversion equipment operators, through 3 lead operators, in order to develop and maintain operator skills 30'

- by assigning continuing and "express" applications to operators based on job priority and operator capability,
- by checking work in process and on completion to ensure adherence to instructions, and to monitor work quality, production and operator progress,
- by instructing lead operators and the Data Control Officer on data conversion procedures for new applications,
- by reviewing data on operator production and error rates,
- by evaluating operator performance and discussing appraisal with Group Supervisor and employee,
- by recommending salary increases to Group Supervisor, and
- by resolving disciplinary problems and counseling employees.

Performs other duties such as participating on selection boards, maintaining records of equipment malfunction, and keeping up to date on developments in the data conversion field. 5

Specifications Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of data conversion equipment in order to assign work, train staff and resolve problems of machine operation. A knowledge of operator capabilities and applications processed is required in order to assign work, instruct operators in the most efficient conversion of data and review keying instructions for the preparation of data from a variety of applications. A good knowledge of the nature

5 292

of subject matter of the various applications, and of the applicable coding structure, is required in order to instruct staff, resolve difficulties regarding the interpretation of data and data conversion procedures, and to estimate job completion times.

#### Complexity

Methods and procedures are normally well-defined. Initiative and judgment are required in interpreting source documents and data conversion procedures, in resolving problems relating to the operation of equipment, and in assigning work and allocating staff to meet deadlines and changing workloads. Supervises the operation of a variety of data conversion equipment.. Eighty-six continuing applications are processed by the unit. Workload and staff remain fairly constant.

C4 275

#### Supervision

Supervises a data control officer and a staff of 18 data conversion operators through 3 lead operators. Coordinates the training of new operators on the operation of the equipment and on the processing of applications, and instructs the data control officer and lead operators on new applications. Assigns work directly or through the data control officer. Monitors work in progress and completed work for accuracy and for adherence to data conversion procedures. Resolves disciplinary problems and counsels employees. Appraises operator performance and discusses with employees and supervisor. Recommends pay increases and retention or dismissal of new employees.

C4 85

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 11: UNIT SUPERVISOR, DATA CONVERSION (DA-CON-5)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the English language is essential for this position.   |
| Experience                       | - Experience in operating a variety of data conversion equipment and in supervising data conversion operators.                      |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Knowledge            | - Knowledge of coding systems and control procedures.   |
| Abilities            | - Ability to schedule and assign work, train and assess staff and resolve operating problems.<br>- Ability to prepare reports and correspondence. |
| Personal Suitability | - Tact and courtesy particularly in dealing with users and schedulers.<br>- Reliability and initiative.   |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 12

Level: 6

Descriptive Title: DATA CONVERSION  
UNIT SUPERVISOR

Point Rating: 740

Summary

Under the general supervision of the Chief of Operations, directs and controls the activities of the Unit\*; supervises the staff; organizes and administers the work of 9 employees engaged in the preparation of data for computer processing and performs other duties.

Duties

% of Time

Directs and controls the activities of 8 data conversion operators and a subordinate supervisor engaged in operating key-punch and verification equipment to process approximately 30 continuing applications and numerous "express" applications of varying complexity each month

by developing key-punch instructions for the most efficient keying of data from source documents onto cards,

- by assigning work to operators in order to make best use of their experience and abilities,
- by adjusting work schedule in order to accommodate priority applications,
- by ensuring 24-hour turn-around of "express" applications,
- by reviewing completed work and operator production statistics, and
- by determining the need for overtime and assigning staff as required.

60

Supervises a staff of 8 operators and 1 subordinate supervisor operating various models of key-punch and verification equipment, a tape encoder, a sorter and a paper-tape to punched card machine

- by selecting operators referred to the Unit by the Personnel Branch,
- by analyzing individual operator production statistics,

20

\*See Glossary of Terms page I-5

% of Time

- by appraising operator performance and making recommendations to Chief of Operations regarding pay, promotion, retention or the requirement for disciplinary action,
- by providing on-the-job training as required including the preparation of program drum cards, and
- by recommending changes in position classification and numbers of positions.

Organizes and administers the work of a Data Conversion Unit to facilitate the orderly processing of data

- by discussing layouts of source documents with the users to ensure the most effective presentation of data,
- by providing cost estimates to users based on key stroke rate for each application,
- by breaking down large production-type applications into smaller units for more expeditious processing,
- by determining the need to use the services of outside data preparation agencies,
- by recommending sources to provide outside services,
- by reviewing tenders and recommending contractor,
- by developing key-punch instructions and key-stroke standards for outside, work,
- by liaising with contractor to resolve problems, and
- by checking completed work and determining charge to user.

15

Performs other duties such as determining charges to users for in-house work, wiring panels for simple applications to be processed on paper-tape to card machine, and arranging for the maintenance of equipment.

5

Specifications

Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of key-punch and key-to-tape machines sufficient to supervise their operation and to provide on-the-job training of staff, and a knowledge of the

6 345

operation of a sorter and paper-tape to punched card machine sufficient to wire panels for simple applications and to supervise their operation. The work also requires a knowledge of the capabilities of operators in order to plan and schedule work and to assign work on the basis of priorities. A knowledge of source documents and machine capabilities is required in order to develop production standards and key-punch instructions. Knowledge of user requirements is essential in recommending source document layouts.

#### Complexity

Initiative and judgment are required in assigning work, recommending source document layout, developing keying instructions, assigning overtime work, assessing bids from outside contractors, and selecting and monitoring the work for processing by such contractors. The work requires the supervision of the operation of key-punch and verification equipment, a tape encoder, a sorter and a paper-tape to punched card machine. Approximately 30 continuing applications are processed at time intervals varying from weekly to annually, in addition to numerous non-repetitive applications each month.

D<sub>4</sub> 290

#### Supervision

The work of 8 operators and a subordinate supervisor is supervised. Operators are selected and appraised, and recommendations are made to the Chief of Operations concerning appropriate staffing actions. Assigns work directly or through the subordinate supervisor. Develops production standards and assesses operator performance based upon these standards. Provides on-the-job training and makes recommendations concerning the number and classification of positions.

D<sub>3</sub> 105

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 12: DATA CONVERSION UNIT SUPERVISOR (DA-CON-6)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position.                                  |
| Experience                       | - Experience in data conversion operations.   |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of source document layouts and production-type applications.<br><br>- Knowledge of support equipment such as a sorter and a paper-tape to punch-card machine.   |
| Abilities | - Ability to prepare cost estimates and analyze operator production statistics.<br><br>- Ability to organize, schedule and assign work, set priorities, establish positions and select, train and assess operators.<br><br>- Ability to prepare instructions, standards and correspondence. |

Personal Suitability

- Effective interpersonal relationships.
- Tact and courtesy particularly in dealing with users and contractors.
- Initiative and reliability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 13

Level: 6

Descriptive Title: GROUP SUPERVISOR,  
DATA CONVERSION

Point Rating: 772

Summary

Under the general supervision of the Section Head, plans and directs the operations of a group of 3 units of key-punch and verification operators; supervises a staff of 60 operators through 3 sub-supervisors; orders departmental requirements for punch cards; and performs other duties.

Duties

% of Time

Plans and directs the activities of key-punch and verification operators engaged in the conversion of data from approximately 140 applications

- by conferring with systems analysts and users to determine the feasibility of projects for preparation on key-punch equipment, review source document, design and develop special keying requirements,
- by designing electro format of punch cards for new or revised applications,
- by estimating the cost and length of time to process applications,
- by negotiating work deadlines with users,
- by preparing work schedules and allocating staff and machine resources to meet negotiated deadlines,
- by preparing key-punch instructions and punch card formats to ensure the most efficient preparation of data,
- by monitoring work progress to ensure that deadlines are met, and
- by resolving problems regarding keying instructions for new applications.

60

Supervises a staff of approximately 60 key-punch and verification operators and lead operators, through 3 sub supervisors, to ensure the effective development of staff

- by making short and long-term allocation of staff and equipment within the group to ensure the most effective use of resources and efficient processing of work,

25

% of Time

- by assigning work through sub-supervisors in accordance with operator capabilities,
- by ensuring that operator training is carried out to meet work requirements,
- by assessing work of sub-supervisors and reviewing appraisal with Section Head,
- by reviewing appraisal of operators and lead operators with sub-supervisors, and
- by proposing staffing and classification actions to Section Head.

Ensures a continued availability of punch cards to the Section and other departmental users

- by taking a bi-monthly inventory, 10
- by adjusting records as required,
- by estimating future requirements based on work load, and
- by ordering required amounts.

Performs other duties such as maintaining and reviewing production records and serving on selection boards.

5

Specifications

Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of a variety of models of key-punch and verification equipment and of operator capabilities in order to assign and schedule work, prepare key-punch instructions, provide for the training of staff and to resolve operating problems referred by sub-supervisors. A knowledge of user requirements is necessary in order to recommend source document design and to develop the most effective data preparation procedures. The ability to co-ordinate the activities of 3 units is required in order to meet established deadlines and changing priorities.

5 292

Degree Points

Complexity

Initiative and judgment are required in developing key punch instructions and punch card formats, and in recommending data preparation procedures to users. Initiative and judgment are also required in assigning work, allocating staff and equipment resources to maintain production schedules and cope with changing priorities, estimating costs, negotiating deadlines with users and in directing the activities of the group.

D5 345

The work requires the supervision of a variety of models of key-punch and verification equipment. The processing of approximately 140 continuing applications is supervised. Workload and staff remain fairly constant.

Supervision

Work is assigned, through 3 sub-supervisors, to a staff of 60 key-punch and verification operators. Staff is allocated within the groups as required and the training of staff to meet work quality and production requirements is ensured. The performance of sub-supervisors is assessed and the appraisal of operators and lead operators is discussed with the Section Head and sub-supervisors. Recommendations are made to the Section Head regarding staffing and classification requirements.

D5 135

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS

FOR

B.M.P.D. No. 13: GROUP SUPERVISOR, DATA CONVERSION (DA-CON-6)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of the English language is essential for this position.   |
| Experience                       | - Experience in supervision.  |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of the capabilities and operation of a variety of key punch and verification equipment.<br>- Knowledge of source document design and data conversion procedures. |
| Abilities | - Ability to determine organizational needs, plan operations, schedule and assign work, set priorities, and select, train and assess operators.                              |

- Ability to prepare standards, instructions, and correspondence.

- Ability to prepare cost estimates and analyze operator production statistics.

Personal Suitability

- Tact and courtesy particularly in dealing with users and systems analysts.

- Initiative and reliability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 14

Level: 7

Descriptive Title: DATA CONVERSION  
SUPERVISOR

Point Rating: 810

Summary

Under the general supervision of the Installation Manager, directs the activities of 21 data conversion operators engaged in the recording of data from source documents to punch cards and magnetic drum, and the verification of such data; plans and administers the operations of the Section to ensure the effective utilization of staff, equipment and space; supervises staff and performs other duties.

Duties

% of Time

Directs and controls the activities of the Data Conversion Section engaged in operating data conversion equipment to record and verify data from source documents onto punch cards or magnetic drum for computer processing

- by documenting the receipt of source documents and assigning code numbers for the purpose of production progress control,
- by analyzing source document and report format requirements and writing keying instructions, and coding instructions for the preparation of program drum cards,
- by examining proposed source documents and discussing, with the user and system analysts, their design with respect to uniformity and efficiency for data preparation purposes,
- by maintaining a production progress log on all jobs in order to provide status information requested by users, programmers, production analysts and computer operations personnel,
- by resolving, through experience and knowledge or by contact with the originator, problems related to illegible writing on source documents, incomplete data and incorrect coding,

30

- by recording and compiling job statistics pertaining to items such as quantities of records, record length, and duration and completion time, in order to provide control information for subsequent computer scheduling and for the validation of computer processed records, and
- by reviewing completed work for accuracy and either releasing it or recycling it for corrective action.

Supervises the staff of the Data Conversion Section consisting of one Data Conversion System Supervisor and 21 data conversion operators

- by allocating staff and assigning work, directly or through the Data Conversion System Supervisor, to all operators, having regard to individual abilities and equipment capacities,
- by analyzing performance statistics for the purpose of developing production standards,
- by monitoring the performance of all employees to identify areas where corrective measures should be taken and guidance provided for the improvement of individual skills and knowledge,
- by identifying and reporting training needs, developing an on-the-job training program and training, or directing the training of operators,
- by counseling employees, interpreting departmental rules and practices and dealing with complaints and grievances,
- by appraising employees, discussing the evaluations with the employee and the Installation Manager and recommending appropriate staffing action,
- by interviewing, testing and evaluating prospective employees and by participating in the selection process, and
  - by recommending changes in the number or classification of positions.

30

Plans the operation of the Section to ensure effective utilization of staff, space and equipment which consists of 8 key-punch and 5 verifier machines, and an 8-station data conversion system

- by estimating time requirements for the transcribing and verifying of data from source documents on hand as well as documents to be received within a specified time period in order to develop day-to-day working schedules in accordance with the manpower available,
- by reviewing work forecasts and operator productivity statistics and discussing estimated inputs with users in order to develop long-range schedules,
- by examining target dates for various jobs in order to identify critical workload periods and priority conflicts and to modify schedules as required,
- by evaluating productivity of individual operators on a given application to develop criteria for optimum job assignment,
- by monitoring and evaluating machine utilization, determining intermediate and long-term equipment requirements and recommending changes in the number and types of units of data preparation equipment, and
- by developing procedures for the reception, identification, check-off, storage and return of source documents.

20

Resolves workload and equipment problems to ensure continuous and timely processing of data

by selecting jobs for key-punching services to be purchased from commercial service bureaus due to periodic heavy workloads, reviewing cost and delivery estimates and recommending the procurement of such services,

10

of Time

- by keeping records of all jobs submitted to commercial suppliers of key-punching services, specifically documenting data such as job identification, estimated and actual costs, quantity and quality of work and timeliness of delivery,
- by establishing procedures for, and supervising the routine care of, all data preparation equipment including the handling of magnetic tapes and cards, and
- by arranging for maintenance service and discussing machine malfunctions with manufacturers' representatives.

Performs other duties such as maintaining up-to-date knowledge of developments in the data preparation field; attending seminars and equipment demonstrations; fostering contact and exchanging information with colleagues in other installations; and advising users and computer personnel on matters related to technical and cost aspects of data preparation.

10

Specifications

Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the data entry and verification operations and of the capabilities of key-punch equipment, an 8-station data conversion system, and operators, in order to assign and schedule work, to train staff and to resolve operating problems. A knowledge of user requirements is also required so that source documents can be designed and processed in the most effective manner. The ability to plan and organize the work of key-punch and data conversion system units, to develop keying instructions, operating and control procedures and production standards, and to estimate the cost of work contracted out is required.

6 345

Degree Points

Complexity

Initiative and judgment are required in planning the operations of the unit to effectively utilize staff and equipment and to direct the processing of approximately 100 continuing applications to meet user requirements. Judgment is also required in selecting jobs for processing outside the department and in monitoring and assessing the work of outside contractors. The work requires the supervision of the operation of 13 key-punch and verifier machines and an 8-station data conversion system. Workload and staff remain fairly constant.

D<sub>5</sub> 345

Supervision

Supervises a staff consisting of 13 key-punch and verifier operators and a unit of 8 key station operators and a supervisor. Allocates staff, assigns work directly or through the Data Conversion System Supervisor, develops production standards and monitors the performance of all operators against such standards. Identifies training needs of operators and develops on-the-job training to meet these needs. Appraises and counsels employees, and recommends appropriate staffing actions and changes in the numbers and classification of positions.

D<sub>4</sub> 120

EXAMPLE OF A  
STATEMENT OF QUALIFICATION  
FOR

B.M.P.D 14: DATA CONVERSION SUPERVISOR (DA-CON-7)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |   |  |
|---|--|
| <u>Education</u>                        | - Completion of grade ten or achievement of A satisfactory score on PSC Examination 1.   |
| <u>Achievement, Skills Or Aptitudes</u> | - Skills in keying alpha-numeric data, completing at least fifty 60 column records in 15 Minutes with not more than 5% error rate. |
| <u>Language Requirement</u>             | - A knowledge of the English language is Essential for this position.  |
| <u>Experience</u>                       | - Experience in supervising data conversion Operations.  |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of data requirements determination, Source document formats, and data coding systems.<br><br>- Knowledge of data conversion systems, and the capabilities of data conversion equipment.<br><br>- Knowledge of administrative procedures. |
| Abilities | - Ability to plan for, organize and control A data conversion program.<br><br>- Ability to develop procedures and instructions, identify training needs, and develop production standards.   |

DATA PROCESSING  
Data Conversion  
S of Q No. 14

- Ability to select, train and assess data conversion staff.
- Ability to prepare reports and correspondence.

Personal Suitability

- Tact and courtesy, particularly in dealing with users, programmers, production analysts, computer operations personnel and outside contractors.
- Initiative, reliability and persistence.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 15

Level: 7

Descriptive Title: GROUP HEAD,  
DATA CONVERSION

Point Rating: 860

Summary

Under the general supervision of the Data Conversion Section Head, directs the activities of 5 data conversion units and support clerks; plans, develops, and conducts extensive recruiting and training programs; supervises staff and performs other duties.

Duties

% of Time

Directs the activities of 5 Data Conversion Units and support clerks engaged in the preparation of taxation source data and its transference to forms suitable for computer processing

- by analyzing production statistics and projected workloads in order to determine future space and resource requirements,
- by preparing recommendations on a group hiring and re-training schedule for operators and clerks for submission to the Section Head,
- by writing keying instructions for inclusion in the Section's Operating Manual,
- by scheduling work in accordance with priorities and deadlines,
- by coordinating work between day and evening units to meet scheduled deadlines,
- by adjusting schedules to accommodate changing workloads and priorities,
- by compiling and reviewing daily and weekly production reports in order to effectively utilize staff and equipment,
- by recommending to Section Head solutions to problems of handling excessive volumes of work,
- by providing staff for overtime as required, and
- by evaluating work procedures and recommending changes as required.

40

% of  
Time

Plans, develops and conducts the annual recruiting program to provide candidates to meet the requirement for operators during the department's peak workload period

- by participating as a member of the Recruitment Committee to determine the nature and timing of the advertising and testing programs,
- by developing a manual of instructions and procedures for supervisory staff,
- by determining and requisitioning material and equipment requirements,
- by selecting staff to carry out the program,
- by establishing a telephone and mail-answering service to handle enquiries from approximately 5,000 applicants,
- by investigating and resolving problem cases concerning applications,
- by monitoring recruiting progress and adjusting program as required,
- by supervising the preparation and mailing of results to all applicants, and
- by recommending improvements to future programs.

20

Supervises the staff of 5 data conversion units consisting of 5 unit heads and approximately 62 man-years of permanent and casual operators of various types of electro-mechanical data conversion equipment

- by allocating staff within the group and assigning work through unit heads in accordance with established priorities,
- by ensuring that sufficient operators are trained in the various types of electro-mechanical data preparation equipment,
- by completing performance appraisals and discussing with Section Head and employee,
- by making recommendations to Section Head concerning promotions, changes in incentive pay and statutory increases, disciplinary action and the re-hiring of casual operators for the following year's program,

38

of Time

- by interviewing employees for counseling and to provide guidance,
- by assisting the Section Head in the development of production standards, and
- by releasing casual staff who do not perform satisfactorily.

Performs other duties such as designing forms for use in the Section, liaising with outside users concerning classification of processing requirements, assisting on selection boards, writing instructions for work contracted in and estimating processing costs.

2

Specifications

Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of various makes and models of electro-mechanical data preparation equipment and of the capabilities of operators in order to allocate staff, assign work, schedule a fluctuating workload to meet rigid computer deadlines and to estimate future requirements of staff and equipment. A knowledge of departmental recruiting procedures and Of the source documents to be processed is required in order to develop or revise a recruiting manual. A knowledge of supervisory techniques is required in order to supervise a large data preparation and clerical staff with little experience and a high annual rate of turnover. The work also requires a knowledge of the terms and conditions of work for the Clerical and Data Processing Groups.

6 345

Complexity

Initiative and judgment are required in recruiting approximately 1,500 operators from among approximately 5,000 applicants and in scheduling and coordinating the work of day and evening units in order to meet computer deadlines. Initiative and judgment are also required in developing and effectively utilizing the skills of operators and the capabilities of equipment. The work requires the supervision of the operation of a variety of electro mechanical data conversion equipment and the processing

D5 345

of a limited number of complex source documents. On-going operations are complicated by extreme fluctuations in workload which result in staff requirements varying from approximately 32 continuing employees to a maximum of 134 during the peak workload period of about 4 months. As a result, a large proportion of the staff is unskilled and possesses an unknown production potential. Approximately 34 applications are processed on a continuing basis.

#### Supervision

The work requires the supervision of 5 units which at the peak work period consist of 134 full-time and casual employees or approximately 62 man-years. Work is assigned to operators through sub-supervisors. A large-scale recruiting program is planned and conducted in order to provide approximately 1,500 operators for a 4-month period. Daily production statistics are maintained for each operator and analyzed in order to assess staff and to recommend incentive pay changes for operators and forecast future staff and equipment requirements. Staff is allocated within the Group to meet changing workloads and priorities. Ensures that operators are trained on a variety of key-punch equipment. Provides counseling and guidance to operators.

E<sub>5</sub> 170

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 15: GROUP HEAD, DATA CONVERSION (DA-CON-7)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position.                                  |
| Experience                       | - Experience in administering a data conversion program.  |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of the operation and capabilities of various makes and models of electro mechanical data preparation equipment.<br>- Knowledge of the determination of equipment requirements and cost estimation.<br>- Knowledge of personnel administration functions and practices. |
| Abilities | - Ability to plan and control a recruitment and training program.  |

- Ability to develop work systems, procedures and standards.
- Ability to plan for, schedule and assign work, allocate staff and evaluate their performance.
  - Ability to conduct interviews, briefings and meetings, and prepare reports, operating manuals, instructions and correspondence.

Personal Suitability

- Tact and judgment particularly in dealing with users or when recruiting and interviewing applicants.
- Work effectively under pressure of peak workload periods.
- Initiative and reliability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 16

Level: 8

Descriptive Title: DATA CONVERSION  
SECTION HEAD

Point Rating: 985

Summary

Under the direction of the Data Centre Supervisor, plans the operations of the Data Conversion Section to ensure the effective use of resources; directs the on-going activities of approximately 100 data conversion operators and sub-supervisors; supervises staff, and performs other duties.

Duties

% of Time

Plans the operations of the Data Conversion Section to ensure the efficient preparation of data by a staff of approximately 80 man-years operating a variety of data conversion equipment

- by determining production standards for new applications in order to estimate processing time,
- by reviewing current and anticipated or known future workloads in order to develop daily and long-term production schedules,
- by anticipating peak workload periods and revising schedules as required,
- by determining equipment and staff requirements to meet long-term workloads, and planning the use of space for the Section, and
- by developing procedures for the identification and control of work being processed.

45

Directs and controls the on-going operations of the Section to ensure the timely preparation of data for approximately 260 continuing applications

- by developing keying instructions for new applications,
- by instructing sub-supervisors in work procedures, and scheduling and coding requirements,

% of Time

- by ensuring the maintenance of statistical records of production,
- by reviewing operator production statistics to ensure that production standards are maintained,
- by discussing with users the scheduling of repeat applications and the development of source document formats, data conversion procedures and scheduling of new applications,
- by coordinating the work of day and evening shifts,
- by adjusting schedules to meet changing priorities and workload, and recommending overtime as required,
- by recommending the use of outside commercial services to cope with periods of heavy workload, and
- by developing work specifications, instructions and cost estimates, liaising with contractor, and ensuring adherence to quality standards for work contracted out.

30

Supervises a section, of approximately 100 data conversion operators (80 man-years) and supervisors to ensure the effective development of staff

- by assigning work to day and evening shifts through 3 sub-supervisors,
- by allocating staff within the Section to meet short and long-term production schedules,
- by ensuring the training of operators for the processing of new applications or the operation of new equipment,
- by evaluating the performance of sub-supervisors and reviewing and approving the evaluations of data conversion operators,
- by recommending to the Data Centre Supervisor, the taking of disciplinary action and changes in the number and classification of positions,
- by interviewing, testing and selecting new operators, and

20

of Time

- by interviewing employees to provide counseling and guidance.

Performs other duties such as arranging for the maintenance of equipment, designing forms for internal use, and maintaining an up-to-date knowledge of developments in the data conversion field.

5

Specifications

Degree Points

Skill and Knowledge

The work requires a thorough knowledge of the operation and capabilities of key-punch and verification equipment, tape encoders and a data conversion system, and of the capabilities of operators in order to plan, schedule and allocate work, to provide for the training of operators, to resolve operating problems referred by the sub supervisors, and to estimate future staff and equipment requirements. A knowledge of user requirements is necessary in order to develop formats, for source documents, and data conversion procedures. The ability to coordinate and control the activities of day and evening staffs operating a variety of data conversion equipment, to develop production standards, keying instructions and operating and control procedures, and to control the processing of work contracted out is necessary.

7

400

Complexity

Initiative and judgment are required in planning and directing the daily and long-term operations of the Section in order to effectively utilize staff and equipment, in monitoring work contracted out, in developing keying instructions, production standards and operating and control procedures, and in re-assigning work to meet a changing workload and production deadlines. Initiative and judgment are also required in forecasting equipment and staff requirements, planning office lay-outs, and in recommending the acquisition of new equipment to the Data Centre Supervisor. The work requires controlling

D<sub>6</sub>

400

the operations of a variety of models of key-punch and verification equipment, 16-station and 10-station data conversion systems and a small number of tape encoders. Approximately 260 applications of varying complexity are processed on a continuing basis. Workload and staff remain fairly constant.

#### Supervision

The work requires the supervision of a day staff of approximately 60 operators and sub-supervisors and approximately 20 man-years of casual night staff. Staff is allocated to meet long-term production requirements and work is assigned through 3 sub-supervisors. Standards of production and error rate are developed and implemented, and are analyzed as a basis for the review of the evaluation of operators performed by the sub-supervisors. Appraisals of the 3 sub-supervisors' performance are conducted. The training of operators is ensured in order to maintain a staff capable of operating the variety of equipment in the Section and in processing a wide variety of applications. Applicants for employment are interviewed and selected. Counseling and guidance are provided to operators. Disciplinary action and changes in staff with respect to numbers and classification are recommended to the Data Centre Supervisor.

E6 185

EXAMPLE OF A

STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 16: DATA CONVERSION SECTION HEAD (DA-CON-8)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.   |
| Achievement, Skills or Aptitudes | - Skill in keying alpha-numeric data, completing at least fifty 60 column -records in 15 minutes with not more than a 5% error rate. |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position.                                   |
| Experience                       | - Experience in supervising data conversion operations.  |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of the capabilities of data conversion equipment and systems.<br>- Knowledge of source document formats and data coding systems.<br>- Knowledge of personnel policies and regulations. |
| Abilities | - Ability to plan, schedule and allocate work, train operators, resolve operating problems, appraise employees and determine staff requirements.   |

- Ability to forecast equipment requirements and plan office lay-outs.
- Ability to develop procedures and standards.
- Ability to prepare reports, instructions and correspondence.

Personal Suitability

- Tact and courtesy particularly in dealing with users and outside contractors.
- Initiative, dependability and thoroughness.

DESIRABLE QUALIFICATIONS

- Experience in preparing cost estimates.

PART IV  
POSITION CLASSIFICATION AND EVALUATION PLAN  
DATA PRODUCTION SUB-GROUP

INTRODUCTION

This part of the standard consists of an introduction, a definition of the Data Production Sub-group, a glossary of terms, factor definitions and point rating scales. Bench-Mark Position Descriptions are located in Part VI.

Point-rating is an analytical, quantitative method of determining the relative value of jobs. It is particularly suited to heterogeneous occupational groups and sub-groups in which the work consists of varied combinations of duties. Point-rating plans define characteristics or factors common to the work being evaluated and define degrees of each factor. Point values are assigned to each degree and the value of each job is the sum of the point values assigned by raters.

All methods of job evaluation require the exercise of judgment and the orderly collection and analysis of job information in order that consistent judgments can be made. The point-rating method facilitates rational discussion and resolution of differences in determining the relative values of jobs.

Factors

The combined factors do not describe all aspects of jobs. They deal only with those characteristics that can be defined, distinguished and measured and that are therefore useful in determining the relative values of jobs. Four factors are used in this plan.

Point Values

In the rating plan, the factors and point values shown below are used.

PointValues

Factor	Minimum	Maximum
Knowledge	60	300
Responsibility for Processing	55	275
Impact	55	275
Supervision	10	150
	180	1,000

### Bench-mark Positions

Bench-mark position descriptions are used to illustrate the work and exemplify degrees of each factor. Each description consists of a brief summary, duties with the percentage of time devoted to each, and specifications written in terms of the four factors. The bench-mark positions have been evaluated, and the degree and point values assigned to each factor are shown in the specifications.

The rating scales indicate the bench-mark position descriptions exemplifying each degree. These position descriptions serve as sources of reference for validating judgments made in applying the factors provided for the evaluation of positions in this sub-group. Their purpose is therefore to aid raters and ensure consistency in the application of the rating scales.

### Use of the Evaluation Plan

There are five steps in the application of this evaluation plan.

1. The description of duties for a position is studied to ensure understanding of the work. The relation of the position being rated to positions above and below it in the organization is also studied. Allocation of the position to the category, group and sub-group is confirmed by reference to the definitions and descriptions of inclusions and exclusions.
2. Tentative degrees of each factor in the position being rated are determined by comparison of the duties with degree definitions in the rating scales. Uniform application of degree definitions requires frequent reference to the descriptions of factors and the notes to raters.
3. The description of the factor in each of the bench-marks exemplifying the degree tentatively selected is compared with the description of the factor in the position being rated. Comparisons are also made with descriptions of the factor in bench-marks for the degree above and below the one tentatively selected.
4. The point values for all factors are added to determine the tentative total point-rating.
5. The position being rated is compared as a whole with duties of positions to which similar point values have been assigned, as a check on the validity of the total rating.

Determination of Levels

The ultimate objective of job evaluation is to determine the **relative value** of jobs in each occupational group so that employees may be paid at rates consistent with the relationship indicated. Jobs defined within a designated range of point values will be regarded as of equal difficulty and value and will be allocated to the same level.

RATING SCALES

FACTOR WEIGHTS

Knowledge	300
Responsibility for Processing	275
Impact	275
Supervision	150
	1,000

POINT BOUNDARIES

LEVELS	POINTS
DA-PRO 1	180 - 250
DA-PRO 2	251 - 390
DA-PRO 3	391 - 530
DA-PRO 4	531 - 660
DA-PRO 5	661 - 790
DA-PRO 6	791 - 920
DA-PRO 7	921 - 1000

SUB-GROUP DEFINITION

The performance or supervision of duties requiring operation and control of electronic computers, peripheral, unit record and auxiliary equipment, and the scheduling of the operation of such machines, which are used for the purpose of reporting, storing, retrieving and comparing data and solving problems.

Inclusions

Positions included in this sub-group are those in which one or more of the following duties is of primary importance:

- The operation of electronic computer consoles and peripheral, unit record and auxiliary equipment.
- The planning and scheduling of computer, unit record and auxiliary equipment operations.
- The development and application of procedures for processing and validating data.
- The development of instruction for training data production staff to perform their duties.
- The supervision of any of the above duties.

Exclusions

Excluded from this sub-group are positions in which the duties are those included in the Data Conversion Sub-group.

Glossary of Terms

Technical terminology used in data production work is sometimes subject to varied interpretation. This glossary is provided to explain how these terms are to be interpreted in the context of the standard.

"Application Program". A program written for or by users to solve a problem in their own work. An application is the particular kind of program to which data processing techniques are applied.

"Auxiliary Equipment". Units or devices that may be part of the data processing installation but are not activated or controlled by a computer and require independent operation, e.g., tabulating equipment.

"Batch Processing". (1) Refers to the technique of executing computer programs, in which they are accumulated in a queue and each is completed before the next program is started. (2) Refers to sequential input of computer programs or data.

"Central Processing Unit". A unit of a computer that includes the circuits controlling the interpretation and execution of instructions. Abbreviated CPU.

"Computer". An internally programmed processor of data that can perform substantial computation, including numerous arithmetic or logic operations, without intervention by a human operator during performance of a program or routine.

"Control Panel". A part of a computer console that contains manual controls.

"Core". The main memory of a computer.

"Edit". To modify the form or format of data, for example, to insert or delete characters such as page numbers or decimal points.

"Hardware". Physical equipment, as opposed to the computer program or method or use; contrast with software.

"Job Control", especially "Job Control Language". A language used to code job control statements and to communicate with the operating system of a computer; the statements identify or describe the requirements of an application program to the operating system.

"Multi-processing System". A computing system employing 2 or more inter-connected processing units to execute programs simultaneously.

"Multi-programming". Refers to the concurrent execution of 2 or more programs by a computer. The basic principle of multi-programming is that more than one program can be present in memory at the same time and share the available processor time and peripheral units. Each program is written as a completely independent unit, as if it were being produced for a single-program machine.

"Off-line". Refers to equipment or devices not under the control of the central processing unit and functioning separately from it.

"On-line". Refers to equipment or devices under the control of the central processing unit, or to functions or processes reacting concurrently with it.

"Operating System". Software programs or routines, supplied by manufacturers, which control the execution of application programs.

"Peripheral Equipment". Units or devices that are part of a data processing installation and that are activated by, and directly support or service, a computer, e.g., support computers, tape drives, and on-line printers.

"Plug board". A device for controlling the operation of certain types of data processing machines by means of a removable board with terminals which may be connected in different patterns by the use of plugs fitting into sockets on the board. The specific action required for the machine is determined by the particular interconnections made; these may be changed at any time to alter the functioning of the machine.

"Queue". A waiting line or list consisting of data, messages or programs in a computer system that are pending processing.

"Real-time System". Any system in which the processing of data input to the system to obtain a result occurs virtually simultaneously with the event generating the data. Real-time systems normally require the use of data communications equipment to feed data into the system from remote terminals.

"Report Generator Program". A prewritten, generic program using parameter data only for which it is necessary to specify the format of the files concerned, plus the format and content of the printed report, along with any rules for creating totals, etc. The program will, from this, print out information from computer files.

DATA PROCESSING  
Data Production

"Software". (1) Generally, a term used to indicate a set of programs, procedures, and associated documentation concerned with the operation of a data processing system, and more specifically, the computer programs of the operating system which can assist those using a computer to make the best use of the machine. Contrast with hardware. (2) More loosely, used to indicate users' application programs also.

"Sort". To rearrange items into a predefined sequence, usually in ascending or descending order according to values of key fields; hence, "sorter", a device to sort.

"Storage Medium". The particular material used for recording data for retention purposes. Examples of storage media are punched cards, paper and magnetic tape, and magnetic ink documents.

"Support or Secondary Console". In a computer system with multiple consoles, any console except the master console. The support console controls one or more assigned functions in the multiple console system.

"Teleprocessing". A term referring to the processing of data that is received from, or sent to, remote locations by way of telecommunications lines.

"Unit Record". Refers to a set of data physically separate from other sets; normally, a card containing such a record. "Unit record machines" are those which process punched cards.

"User". An individual, group or organization utilizing or requesting data processing services.

"Utility Programs". Part of the software of a system, devised to perform operations on files of data. Utility programs are independent of the specific contents of any file. They operate on whole files treated as units, transferring them from one storage medium to another, making copies of files, reorganizing their sequence, etc.

KNOWLEDGE FACTOR

This factor measures the difficulty of the work in terms of the skill and knowledge required to perform the duties of the position.

Definitions

"Skill" refers to the ability to perform such tasks as operating equipment, wiring panels, identifying equipment errors and malfunctions, developing systems, wiring plug boards\*, scheduling work and organizing staff and equipment resources.

"Knowledge" refers to the understanding required of data processing theories, principles, systems, methods and procedures and of the standards related to the work.

Notes to Raters

This factor provides six degrees of the assignment of positions by the application of a comparative ranking process. Degree descriptions beyond the first degree are cumulative to include knowledge requirements of the previous degrees.

Statements descriptive of the skill and knowledge required to perform key positions, ranked in this factor, are presented at each degree. The variety of work performed in the sub-group precludes the description of all skill and knowledge requirements applicable to data production jobs.

The statements are intended to guide raters in determining, through matching or comparison, the assignment of a degree within the factor.

Bench-mark positions are also provided to exemplify the nature of skill and knowledge requirements and serve as references for testing the validity of tentative degree assignments.

To apply this factor, raters should:

1. Ensure understanding of skill and knowledge required to perform the duties of the position being evaluated.
2. Tentatively assign the position to a degree of the factor which provides the criteria that can best be matched or compared with the knowledge required in the position.
3. Test the validity of tentative degree selection by reference to bench-mark position descriptions and specifications.

\*See Glossary of Terms page IV-6

DATA PROCESSING  
Data Production

RATING SCALE - KNOWLEDGE FACTOR

Before applying the factor, please see "Notes to Raters" for an explanation of the statements presented with each degree of this scale.

Degree of Knowledge	Points	Bench-mark Position Description	Page-
<p>The work normally requires the understanding and application of</p> <ul style="list-style-type: none"> <li>- procedures for loading the input and operating peripheral* or auxiliary* equipment for operating key-punch machines a minor function, for registering o work processed, for selecting input and dispatching output, and verifying the job card in a deck of program cards.</li> </ul>	1 60	Operator, Sorting Machine	1.2
<p>The work normally requires the understanding and application of</p> <ul style="list-style-type: none"> <li>- the format and sequence of job control cards,</li> <li>- sages for operating r mote terminals,</li> <li>- procedures f identifying abnormal ends to processing and for maintaining and updating data production documentation,</li> <li>- procedures for the submission of processing cork and for a creaming the status of processing work in a computer,</li> <li>- procedures for wiring unit record plug boards for sorting, simple sequence checking, interpreting or reproducing punched cards.</li> </ul>	2 108	Peripheral Equipment Operator Operator, Remote Job Entry Terminal Tape Librarian	2.2 3.3 4.3
<p>The work normally requires the understanding and application of</p> <ul style="list-style-type: none"> <li>- procedures and job control coding for processing tape library and similar utility programs*,</li> <li>- messages, codes and procedures for operating a support console to a multi-programmed computer or for operating a computer not requiring job mixing,</li> <li>- procedures for wiring unit record plug board, for tabulating and performing similar functions.</li> </ul>	3 156	Computer Operator Junior Console Operator Operator, Unit Record Machine	6.3 7.3 5.2
<p>The work normally requires the understanding and application of</p> <ul style="list-style-type: none"> <li>- job control statements for employing report generator programs* o controlling a computer,</li> <li>- methods and procedures relative to the identification of computer equipment and software malfunctions,</li> <li>- the capabilities of a installation's data production equipment and the services it provides,</li> <li>- the processing and scheduling techniques to be employed,</li> <li>- sages and codes for a computer system that mal ci-programmed, methods for mixing jobs and procedure. for operating the system's sole and/or that of the back-up system,</li> <li>- procedures and methods for w' in g plug boards for performing the full range of arithmetic operations.</li> </ul> <p>The work normally requires understanding and application of the major icy of</p> <ul style="list-style-type: none"> <li>- methods for evaluating equipment and staff</li> </ul>	4 204	Main Console Operator Group Read, Tape Library Supervisor, Terminal Unit	8.3 10.3 9.4
<p>The work normally requires understanding and application of the majority of</p> <ul style="list-style-type: none"> <li>- methods for evaluating equipment and staff</li> <li>- methods for developing the operations procedures of a computer or a unit record processing installation,</li> <li>- the system for scheduling processing and crying priorities,</li> <li>- the capabilities of a computer's operating system* and utility programs and methods of r solving malfunctions,</li> <li>- the programming work of a computer centre or unit record installation,</li> <li>- operating procedures for a on-line real-time* rations system, including recovering computer processing and communication lines.</li> </ul>	5 252	Computer Controller, On-line Enquiry System Procedure. Writer Shift supervisor Training Officer Group Head, Scheduling Chief, Auxiliary Equipment Section	11.4 12.2 14. 3 13.3 15.3 16.3
<p>The work normally requires understanding and application of the majority of</p> <ul style="list-style-type: none"> <li>- methods of organizing and coordinating data processing resources including equipment and staff,</li> <li>- standards for servicing equipment, and/or methods for resolving malfunctions in a real-time system,</li> <li>- methods for determining the effectiveness of a data processing installation and the procedures employed a processing organization,</li> <li>- innovation, i utility programs and computer software or hardware,</li> <li>- procedures for transferring computer operations to a back-up installation.</li> </ul>	6 300	Shift Manager Regional Supervisor, Data Processing Supervisor, Computer Operations	17.3 18.3 19.3

\*See Glossary of Terms page IV-6 \*\*All page numbers refer to Part VI.

RESPONSIBILITY FOR PROCESSING FACTOR

This factor measures the difficulty of the work in terms of the scope for initiative and judgment required in controlling equipment and procedures, providing advice and recommendations to users or superiors on matters affecting the quality or productivity of data processing operations.

Notes to Raters

The degree definitions of this factor describe, in an ascending order, the scope of responsibilities normally assigned to positions in the sub-group. To apply this factor, raters should:

1. Compare initiative and judgment required by the duties being rated with the nature of initiative and judgment described in the introductory statement to each degree definition.
2. Tentatively select a degree, then confirm the selection by matching or comparing position requirements with the typical examples provided in each degree definition and with benchmarks.

DATA PROCESSING  
Data Production

RATING SCALE - RESPONSIBILITY FOR PROCESSING FACTOR

Degrees of Responsibility for Processing	Points	Bench-mark Position Description	Page A
<p>Judgment is limited by processing instructions to include one or more of:</p> <ul style="list-style-type: none"> <li>- selecting and verifying input and output against instructions,</li> <li>- selecting appropriate switches and settings on equipment panels* and selecting and wiring or amending plug boards according to instructions,</li> <li>- selecting responses to instructional messages from a computer, and</li> <li>- identifying and providing information an input to and</li> <li>- noting hardware malfunctions.</li> </ul>	1	55	<p>Operator, Sorting Machine Peripheral Equipment Operator</p> <p>1.2 2.3</p>
<p>Judgment is required to select courses of action and provide information in accordance with established procedures, and normally includes one or more of:</p> <ul style="list-style-type: none"> <li>- designing wired plug boards for sorting, merging and similar functions,</li> <li>- describing hardware malfunctions,</li> <li>- describing abnormal ends to processing and correcting output flaws, and</li> <li>- outlining for users requirements for submitting jobs for processing and outlining the standard processing sequence to be employed.</li> </ul>	2	99	<p>Operator, Remote Job Entry Terminal Tape Librarian</p> <p>3.3 4.3</p>
<p>Judgment is required to control processing sequence of a single job stream and advise users on it, and normally includes one or more of:</p> <ul style="list-style-type: none"> <li>- designing wired plug boards for tabulating and similar functions, and</li> <li>- controlling processing sequence through the console of a con-programmed* computer, or a support console, or a meld-programmed computer</li> </ul>	3	143	<p>Computer Operator Junior Console Operator Operator, Unit Record Machine</p> <p>6.3 7.3 5.3</p>
<p>Judgment is required to control the grouping or organization of more than one job stream for processing and advise users on these matters, and normally includes one or more of:</p> <ul style="list-style-type: none"> <li>- designing wired plug boards for performing the full range, of arithmetic operations,</li> <li>- regulating processing through computer consoles, utility* programs and job control* statements,</li> <li>- identifying best combinations of equipment and times for processing,</li> <li>- recommending improvements in grouping and ordering processing work, and</li> <li>- identifying and describing for users time and equipment available for processing multiple interrelated jobs.</li> </ul>	4	187	<p>Main Console Operator Group Head, Tape Library Supervisor, Terminal Unit</p> <p>8.3 10.3 9.4</p>
<p>Initiative and judgment are required to develop, adapt and advise on processing procedures and scheduling, and normally include one or more of:</p> <ul style="list-style-type: none"> <li>- identifying problem's encountered with software*, applications or hardware*, taking courses of action to request correction of breakdowns or defects in software, equipment or application programs, reallocating hardware resources and developing data processing procedures,</li> <li>- recommending adoption of procedures and target dates for processing,</li> <li>- establishing processing schedules and changing processing priorities within target dates,</li> <li>- proposing to users that processing priorities and target dates be amended, and</li> <li>- developing training programs in data production, recommending their adoption, and providing advice to users on their development.</li> </ul>	5	231	<p>Procedures Writer Training Officer Shift Supervisor Group Head, Scheduling Computer Controller, On-line Enquiry System Chief, Auxiliary Equipment Section Shift Manager</p> <p>12.3 13.4 14.3 15.3 11.4 16.3 17.4</p>
<p>Initiative and judgment are required to control and advise on data processing quality and productivity, and normally include the majority of:</p> <ul style="list-style-type: none"> <li>- establishing processing quality standards and work flow,</li> <li>- establishing adequacy of equipment servicing and identifying the servicing requirements to equipment companies, ending priorities, equipment needs and expenditures for a processing installation, measures to improve its equipment utilization, and need to contract work out to meet deadlines,</li> <li>- explaining the installation's services and the feasibility of processing target dates to users, and</li> <li>- deciding or effectively recommending when transfer computer operations to a back-up installations or to decide to switch-over to another central processor* in an on-line real-time* communications system</li> </ul>	6	275	<p>Regional Supervisor, Data Processing Supervisor, Computer operations</p> <p>18.3 19.4</p>

\*See Glossary of Terms page IV-6

\*\*All page numbers refer to Part VI. IV-12

IMPACT FACTOR

This factor measures the difficulty and importance of the work in terms of its objectives for which the incumbent is accountable, and the requirements for timely achievement of objectives.

Notes to Raters

There are two elements in this factor. "Nature of objectives" measures the difficulty of achieving the objectives for which the incumbent is accountable. "Requirement for timeliness" measures the demands made on the incumbent for achieving the objectives within a particular time frame. The demands vary according to the speed of processing and are therefore defined in degrees by the types of processing, each of which is significantly different in speed from the others.

To apply this factor, raters should:

1. Identify the objectives of the position being rated.
2. Refer to the "Nature of Objectives" element and tentatively assign the position to the degree which describes objectives that are equal or identical to those established for the position.
3. Identify the type of processing and equipment to which the duties of the position directly relate. This step may require referral to the Glossary of Terms, which defines the asterisked words in the element.
4. Refer to the "Requirement for Timeliness" element and tentatively assign the position to the degree which best describes the type of processing to which the duties directly relate.
5. Validate and test the assignment of degrees in this factor by referring to bench-mark position descriptions.

Positions in which the duties involve two or more types of processing may be assigned to the degree in the timeliness element which describes the most demanding type of processing.

DATA PROCESSING  
Data Production

RATING SCALE - IMPACT FACTOR

Requirement for Timeliness and Degree	Timeliness is that required by the speed of equipment without electronic computing capacity, exemplified by auxiliary and electro-mechanical equipment and remote terminals.	Timeliness is that required by the speed of accounting machines with plug boards* or computers used to execute only one program at a time or computers used a remote terminal and executing a program concurrently.	Timeliness is that required by the speed of computers used to execute two or more programs concurrently, exemplified by multi-programmed* computing.	Timeliness is that required by the speed of the central computer(s) in a data communications system used to respond virtually simultaneously to messages from remote terminals exemplified by on-line real-time* communications processing.
Nature of Objectives and Degree				
	2	3	4	
	Page**	Page**	Page-	Page**
Objectives of the work normally include one or more of the following: - ensuring a accuracy of input to peripheral* and auxiliary equipment, - ensuring that output is accurate and meets established processing standards, and - ensuring the correctness of input issued to operators.	55  Operator. Remote Job Entry Terminal 3.3 A Operator, Sorting Machine 1.2	73	90  Peripheral Equipment Operator 2.3	107
Objectives normally include one or more of the following: - ensuring efficient and orderly processing sequence, as in a non-multi-programmed computer, or through a support console to a multi-progressed computer, - ensuring unit record equipment processes cards in as few passes as possible, and - ensuring that off-line storage media* are available for processing.	97  Operator, Unit Record Machine 5.3 B	115	132  Tape Librarian Junior Console Operator 6.4 6.4	149  4.3 7.3
Objectives normally include one or more of the following: - assessing and reporting the adequacy of processing resources and the nature of processing delays, - processing as many jobs concurrently as possible and preventing loss of program data during processing, - instructing a computer to produce reports such as tables and lists to meet users* requirements, and - providing a sequence and schedule for organizing processing work.	139  Supervisor, Terminal Unit 9.5 C	157	174  Main Console Operator, Group Head, Tape Library 10.4	191  Computer controller, On-line Enquiry System 11.5
Objectives normally include the majority of: - ensuring continuing operation of a Processing system's equipment and continuing processing at required levels, - achieving efficient and effective utilization of a system's hardware and/or other resources, and - improving scheduling or procedures.	181  Chief, Auxiliary Equipment Section 16.4 D	199	216  Group Head, Scheduling Procedures Writer Shift Supervisor Training Officer 13.4	233  Shift Manager 17.4
Objectives normally include the majority of: - ensuring implementation of data processing standards and operating procedures, - achieving co-ordination of the units of a computer operations organization, and - ensuring that deadlines, priorities and user requirements are met by the computer operations organization.	223  E	241	258  Regional Supervisor, Data Processing Supervisor, Computer Operations 19.4	275

\*See Glossary of Terms page IV-6

\*\*All page numbers refer to Part VI.

SUPERVISION FACTOR

This factor measures the nature of supervisory responsibility for the work of others and the numbers of employees supervised.

Notes to Raters

In all positions there is some requirement for showing others how to perform tasks; therefore no position will be assigned less than 10 points (Degree A<sub>1</sub>) under this factor.

In evaluating positions, raters are to consider all requirements outlined for each degree of supervision. The criterion for assigning a position to a degree is that the majority of requirements listed in that degree must be included in the duties of the position.

For purposes of this standard, "number of employees supervised" is established by totaling the following:

1. The number of man-years for which the incumbent of the position has continuous responsibility.
2. The number of man-years of work performed by non-continuing employees supervised by the incumbent of the position.
3. The average number of man-years supervised where the work is organized on a project basis and follows a cycle having a duration in excess of a calendar year.

SUPERVISION FACTOR

Nature of Super, vision and Degree	Bench-mark Position Descriptions	Page*
- Shows other employees how t ( ) perform tasks.	A Operator, Unit Record Machine	5.3
- Assigns work to staff, and checks their work for accuracy and timeliness.	Junior Console Operator	7.4
- Reports verbally on others' work performance.	Tape Librarian	4.3
- Demonstrates the operation c f peripheral* and auxiliary* equipment, including work methods and sequence.	B Training Officer	13.4
- Monitors the work of others to ensure maintenance of work standard Is and priorities.	Supervisor, Terminal Unit	9.5
- Makes recommendations on staff schedules.	Group Head, Scheduling	15.4
- Allocates staff to cope with fluctuations in workload.	Shift Supervisor	14.4
- Evaluates and reports on the work of staff, informs employees of strength and weakness in day-to-day Performance, and counsels staff on problems with processing procedures and methods.		
- Recommends training outside the work area.		
- Instructs employees in one c r more of: wiring plug boards* for tabulating and similar functions; job control* statement writing, scheduling work for a computer or auxiliary equipment installation, and operating a main console .	C	
- Discusses manpower requirements with supervisor.		
- Establishes duties of subordinates, standards of quality and quantity of work, priorities, and shift schedules.		
- Allocates staff to shifts and schedules overtime.		
- Reviews formal appraisals ol: staff performance and achievement of processing objectives, recommends promotions and other personnel actions, and discusses appraisals anti development needs with staff.	Regional Supervisor, Data Processing	18.4
- Determines training requirements.	Chief, Auxiliary Equipment Section	16.4
- Counsels staff on behavior problems and formally recommends disciplinary actions.		
- Interviews candidates for positions and for casual employment.		
- Formally recommends manpower requirements.	D	

\*See Glossary of Terms pane IV-6

\*\*All page numbers refer to Part VI.

RATING SCALE - SUPERVISION FACTOR

Number of Employees Supervised and Degree		Nature of Supervisory Responsibility and Degree			
		A	B	C	D
Any number of employees	1				
Up to 10	2		30	65	100
11 - 25	3		55	90	125
More than 25	4		80	115	150

PART V  
SELECTION PLAN  
DATA PRODUCTION SUB-GROUP

INTRODUCTION

The Selection plan includes the Selection Standard for this Group developed pursuant to Section 12 of the Public Service Employment Act, with instructions for adapting it to the requirements of individual positions in the form of a Statement of (Qualifications.

Section 6 of the Public Service Employment Regulations requires that a Statement of Qualifications be prepared for each position to which an appointment is to be made. Each Statement of Qualifications is to specify and differentiate between those qualifications that are essential and those qualifications, if any, that are desirable for the performance of the duties and responsibilities of a position.

Qualifications refer to any training, ability, knowledge, accomplishment or personal attribute that is essential or desirable for performance of the duties and :responsibilities of a position.

As qualifications vary with the job, content requirements of individual positions they must b e identified for each position for which staffing action is intended. They arc! to be based on the duties and responsibilities of the position concerned and expressed in the form of a Statement of qualifications. These qualifications then become the criteria against which selections are made for that staffing action.

The following pages contain an explanation of the various parts of a Statement of Qualifications, a description of qualifications for positions in this Subgroup?, a Rating Guide and a description of the methods to be used in assessing the qualifications of candidates fox these positions. Examples of Statements of (,qualifications for positions in this Sub-Group based on Bench-Mark Position Descriptions are presented in Part `TI of this Standard.

STATEMENT OF QUALIFICATIONS

Structure

The basic structure of a Statement of Qualifications is as follows:

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- Education Factor
- Occupational Certification Factor
- Achievement, Skills or Aptitudes Factor -  
Language Requirements Factor - Experience  
Factor

RATED REQUIREMENTS

- Knowledge Factor
- Abilities Factor
- Personal Suitability Factor

DESIRABLE QUALIFICATIONS

- (Individual qualifications that are desirable, if any.)

Definitions

A Statement of Qualifications consists of two components:

ESSENTIAL QUALIFICATIONS - This component provides for the inclusion of qualifications which a person must possess in order to adequately perform the duties and responsibilities of a position. It consists of two sub-components:

BASIC REQUIREMENTS - This sub-component provides for the inclusion of those essential qualifications that are used for initial screening purposes. Applicants must meet the Basic Requirements before consideration can be given to their other qualifications. Basic Requirements are minimum criteria and are not rated by degree. Basic Requirements include the following five Selection Factors:

Education - (a) Refers to a background in academic, vocational or technical studies and training which is recognized through the actual or imminent conferring of a degree, diploma, certificate or other official document by an approved educational institution or agency.

(b) Acceptable performance on tests prescribed by the Public Service Commission may be an alternative, when specified.

Occupational Certification - Refers to the possession of or eligibility for occupational credentials in the form of a license, certificate, registration, letter, papers or other documents which constitute official recognition of occupational competence.

Achievement, Skills or Aptitudes - Refers to special examinations or tests used to assess achievements, skills or aptitudes which are basic to the performance of the duties and responsibilities of a position.

Language Requirement - Refers to the need for a knowledge of either the English language, the French language, either one or the other or both in relation to the duties and responsibilities of a position.

Experience - Refers to actual participation or practice in activities related to the duties and responsibilities of a position. It means the acquisition or exercise of knowledge or abilities in vocational or a vocational circumstances including voluntary work; and it is conditioned by the achievement realized during its acquisition and by the environment in which it is gained. Experience requirements must not be expressed in terms of a specific number of years.

NOTE: Pre-employment medical examination requirements are to be in accordance with Appendix 13 of the Staffing Manual and are not to be included in the Statement of Qualifications.

RATED REQUIREMENTS - This sub-component provides for the inclusion of those essential qualifications which are used for the rating and ranking of candidates who have met the Basic Requirements. Rated Requirements include the following three Selection Factors:

Knowledge - Refers to information concerning facts, theories, systems, practices, regulations and other subject-matter relevant to the performance of the duties and responsibilities of a position.

Abilities - Refers to competence in the use of tools, materials, and equipment or the application of methods, systems, techniques, practices, policies, regulations and other subject-matter relevant to the performance of the duties and responsibilities of a position.

Personal Suitability - Refers to personal traits or characteristics which condition the utilization of knowledge and abilities in the performance of the duties and responsibilities of a position.

DESIRABLE QUALIFICATIONS - This component provides for the inclusion of qualifications which, although not essential, may further contribute to or enhance a candidate's performance of the duties and responsibilities of a position. The use of Desirable Qualifications is optional, but they must not be used for screening purposes. When they are applicable, they are to be included in the Statement of Qualifications at the same time that the Essential Qualifications are specified, and they are to be assessed only as part of the rating and ranking of candidates who have met both the Basic Requirements and Rated Requirements for the position. Any job-related qualifications other than knowledge of a second official language may be used as Desirable Qualifications, but they should be used sparingly, if at all.

SELECTION STANDARD - DATA PRODUCTION SUB-GROUP

Qualifications applicable to positions in the Data Production Sub-Group are as follows:

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

Education Factor

This factor is applicable to all positions in this Sub-Group.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Education considered necessary.

The minimum education qualification for the Data Production Sub-Group is:

- Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.

NOTE: Possession of the "completion of grade ten" qualification is normally to be determined on the basis of information provided on applications or in personal inventories. Further evidence, if required, may be found in documents such as a school leaving certificate or an official school report card.

Achievement, Skills or Aptitudes Factor

This factor is applicable to all positions in this Sub-Group.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Achievement, Skills or Aptitudes considered necessary for Operators or Trainees.

OPERATORS:

For positions in this Sub-Group requiring skilled data production operators there is a basic equipment operation skill requirement. Following are examples of experienced operator qualifications:

e.g. "Skill in operating a main console." e.g.

"Skill in operating a remote terminal."

NOTE: Possession of such qualifications may be determined on the basis of appropriate tests on relevant data production equipment.

TRAINEES:

For positions in this Sub-Group used for Trainees, there is no basic equipment operation skill requirement. Trainees require the capacity to develop operating skill during on-job training. Following are examples of trainee qualifications:

e.g. "Capacity to learn to operate peripheral equipment."

e.g. "Capacity to learn to operate a main console."

NOTE: Possession of such Trainee qualifications may be determined on the basis of appropriate tests approved for use by the Public Service Commission, including PSC Examination 16.

Language Requirement

This factor is applicable to all positions in this sub-Group.

From the qualifications listed below, determine which one is applicable to the position to be staffed.

- A knowledge of the English language is essential for this position. - A knowledge of the French language is essential for this position.
- A knowledge of either the English language or the French language is essential for this position.
- A knowledge of both the English language and the French language is essential for this position.

Experience

This factor is applicable to positions in this Group for which it is considered necessary to have had previous experience related to the duties and responsibilities involved.

Based on the duties and responsibilities of the position include in the Statement of Qualifications a description of the Experience considered necessary. Following is an example of an Experience qualification:

"Experience - Experience in the use of peripheral equipment such as readers and printers."

- NOTE: (a) To raise Basic Requirements for positions in this Group above the minima prescribed, special permission must be obtained from the Public Service Commission.
- (b) When used in regard to Basic Requirements, terms such as "recognized", "eligibility", "approved", "accredited" or "equivalent" refer to acceptability for staffing purposes as regulated by the Public Service Commission Staffing Program concerned.
- (c) The assessment of Basic Requirements is to be based on performance demonstrations including the use of tests or examinations, educational or occupational credentials, or other evidence available at the time of the screening process.

RATED REQUIREMENTS

Knowledge

This factor is applicable to all positions in this Group, except those used for developing inexperienced personnel where the duties and responsibilities of the position do not warrant use of the Knowledge Factor.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Knowledge considered necessary. Following is an example of a Knowledge qualification:

"Knowledge - Knowledge of job control language and data processing terminology."

Abilities

This factor is applicable to all positions in this Group, except those used for developing inexperienced personnel where the duties and responsibilities of the position do not warrant use of the Abilities Factor.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Abilities considered necessary. Following is an example of an Abilities Qualification:

"Abilities - Ability to identify errors in job control language and malfunctions in equipment and air-conditioning."

Personal Suitability

This factor is applicable to all positions in this Group.

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of the Personal Suitability considered necessary. Following is an example of a Personal Suitability qualification:

"Personal Suitability - Initiative, tact and courtesy."

DESIRABLE QUALIFICATIONS

Based on the duties and responsibilities of the position, include in the Statement of Qualifications a description of those qualifications considered desirable, if any. Following is an example of a Desirable Qualification:

"-Knowledge of simple accounting procedures."

PREPARATION OF A STATEMENT OF QUALIFICATIONS

The steps involved in preparing a Statement of Qualifications are as follows:

1. Gain a thorough understanding of the duties and responsibilities for the position to be staffed.
2. Review this Selection Plan carefully.
3. Examine the examples of Statements of Qualifications presented in Part VI of this Standard in order to become familiar with the format and sorts of qualifications required for positions in this Group.
4. Based on the duties and responsibilities of the position, describe the qualifications required for the position under the appropriate Component, Sub-Component, and Selection Factor heading.

NOTE: The examples of Statements of Qualifications provided in this Standard are for illustrative purposes only. It is not necessary, therefore, to adhere to the qualifications specified in the examples when staffing positions on which the Bench-Mark Position Descriptions are based, or when staffing positions of a similar nature.

In determining which qualifications are to be included in the Statement of Qualifications, the prime considerations are:

- (a) their relevancy to the duties and responsibilities of the position;
- (b) their assess ability for selection purposes; and
- (c) their value in differentiating between candidates.

In arranging qualifications within each Selection Factor they should be laid out in a style and in patterns that:

- (a) combine closely-related qualifications;
- (b) obviate unnecessary duplication and verbiage;
- (c) emphasize salient features; and
- (d) facilitate assessment and selection

The completed Statement of Qualifications specifies the qualifications for staffing the position, and the contents are to be used as basis for:

- (a) advertising notices;
- (b) initial screening of applicants;
- (c) developing a selection rating guide; and
- (d) rating and ranking of candidates.

RATING GUIDE

In assessing the qualifications of candidates for a position, a narrative or numerical rating plan may be used.

Following is an illustration of a format for a selection rating guide using qualifications contained in the Example of a Statement of Qualifications for BMPD No. 9. Basic Requirements are not included in the rating guide since, as minimum criteria, they will have been taken into account during the initial screening to determine which applicants were qualified for further consideration. The ranking of the remaining candidates is accomplished through rating them on the Rated Requirements, and the Desirable Qualifications, if any, that are specified in the Statement of Qualifications for the position being staffed.

Suggested Format

ALLOTTED RATING	PASS RATING	MAXIMUM RATING
--------------------	----------------	-------------------

A. RATED REQUIREMENTS

Knowledge Factor

Knowledge of:

1. Job control language, computer terminology and computer code systems.
2. The characteristics of computer programmed documentation.

Total Knowledge Factor

Abilities Factor

Ability to:

1. Control a terminal unit service.
2. Select and train staff and assess their performance.

Total Abilities Factor

ALLOTTED RATING	PASS RATING	MAXIMUM RATING
--------------------	----------------	-------------------

Personal Suitability Factor

1. Effective interpersonal relationships.
2. Initiative and reliability.

Total Personal Suitability Factor

Total Rated Requirements

B. DESIRABLE QUALIFICATIONS

Knowledge of:

1. Simple accounting procedures. N/A

Total Desirable Qualifications

Rating for:

Rated Requirements

Desirable Qualifications

COMBINED RATING

COMMENTS

ASSESSMENT INSTRUCTIONS

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

Basic Requirements are assessed as minimum criteria on a pass/fail basis and are not to be rated by degree. Applicants must meet at least the minimum standard required for each applicable Selection Factor, or they are eliminated from further consideration.

RATED REQUIREMENTS

The relative importance of Selection Factors and Qualifications related to the duties and responsibilities of the position being staffed is determined by those administering the selection process. The weightings which may be applied to Selection Factors and Qualifications in the case of a numerical rating plan, and the differences in emphasis which may be assigned to Selection Factors and Qualifications when a narrative rating plan is used, must be applied consistently throughout the assessment process.

In assessing Rated Requirements candidates must achieve an overall pass rating on the aggregate of Qualifications contained within each Selection Factor. Where a numerical rating plan is used candidates must achieve a pass mark of at least sixty percent on each applicable Selection Factor. In the case of a narrative rating plan candidates must meet at least the minimum degree of Qualifications required for each applicable Selection Factor. Candidates who fail to gain an overall pass rating on each applicable Selection Factor are eliminated from further consideration.

DESIRABLE QUALIFICATIONS

Once candidates have met the Rated Requirements, any credit given for Desirable Qualifications specified in the Statement of Qualifications is to be added to the rating for Rated Requirements to reach a composite assessment. As credit given for Desirable Qualifications has an effect on the ranking of individuals, Desirable Qualifications must be assessed with the same care and consistency as that given to Rated Requirements. The total maximum marks allowed for Desirable Qualifications must not exceed ten percent of the total maximum marks allowed for Rated Requirements. This percentage may also serve as a guide in establishing the degree of emphasis that may be given to Desirable Qualifications when a narrative rating plan is used.

PART VI  
BENCH-MARK POSITION DESCRIPTIONS  
AND  
STATEMENTS OF QUALIFICATIONS

INTRODUCTION

Bench-Mark Position Descriptions are intended to exemplify the degrees of each classification factor and element in the position classification and evaluation plan. They are based on actual positions allocated to the Data Production Sub-group but, because they serve to exemplify degrees, their value for that purpose continues even when the actual positions undergo changes.

The contents of Bench-Mark Position Descriptions serve to illustrate the type of information used as a basis for the classification of positions and development of Statements of Qualifications for the selection of people to fill those positions.

Examples of Statements of Qualifications are intended to illustrate the selection factors and qualifications provided for in the selection plan, which are relevant to the Bench-Mark Position Descriptions. When staffing a position on which a Bench-Mark Position Description is based, the example of a Statement of Qualifications provided for that Bench-Mark Position Description may be used as shown or modified to meet current requirements. For other positions, a suitable Statement of Qualifications must be prepared.

DATA PROCESSING  
Data Production

BENCH-MARK POSITION DESCRIPTION AND  
STATEMENT OF QUALIFICATIONS INDEX  
DATA PRODUCTION SUB-GROUP

In Ascending Order of Point Values

Descriptive Title	BMPD/ S of Q	Total No. Points	BMPD Page*	S of Q Page*
Operator, Sorting Machine	1	180	1.1	1.3
Operator, Sorting Machine	1(T)		1.1	1.4
Peripheral Equipment Operator	2	263	2.1	2.4
Peripheral Equipment Operator	2(T)		2.1	2.5
Operator, Remote Job Entry Terminal	3	272	3.1	3.5
Tape Librarian	4	369	4.1	4.4
Operator, Unit Record Machine	5	406	5.1	5.4
Computer Operator	6	424	6.1	6.5
Junior Console Operator	7	461	7.1	7.5
Main Console Operator	8	595	8.1	8.5
Supervisor, Terminal Unit	9	595	9.1	9.6
Group Head, Tape Library	10	630	10.1	10.5
Computer Controller, On-Line Enquiry System	11	704	11.1	11.6
Procedures Writer	12	709	12.1	12.4
Training Officer	13	729	13.1	13.5
Shift Supervisor	14	764	14.1	14.5
Group Head, Scheduling	15	764	15.1	15.5
Chief, Auxiliary Equipment Section	16	814	16.1	16.5
Shift Manager	17	854	17.1	17.5
Regional Supervisor, Data Processing	18	983	18.1	18.5
Supervisor, Computer Operations	19	983	19.1	19.5

\*All page numbers refer to Part VI.

February 1974

VI-(b)

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 1

Level: 1

Descriptive Title: OPERATOR, SORTING MACHINE

Point Rating: 180

Summary

Under the supervision of the supervisor of punched card machines, controls the operation of a sorting machine to ensure that card processing meets users' instructions and to detect key-punching errors in columns, and performs other duties such as reporting volume of work to the supervisor.

Duties

% of Time

Controls the operation of a sorter

- by selecting alphabetic and numeric settings on the machine console to make sorts and edits for particular columns in accordance with job procedures and instructions,
- by suggesting to the supervisor that sorting speed would be increased by changing steps in the sorting,
- by loading cards into the machine's card hopper and by resetting controls and reloading cards for sorting successive columns,
- by segregating rejected cards and referring them to the supervisor or returning them to the user,
- by checking visually the accuracy of sorts,
- by noting when cards are incorrectly sorted and rejected,
- by checking sort brushes and springs for dust and breaks, by cleaning brushes and the path along which cards move, and by removing cards and other material jamming the machine, and
- by reporting other hardware malfunctions to the supervisor,

90

in order to ensure that card processing meets users' instructions and to detect key-punching errors in columns.

Performs such other duties as

- entering job numbers, volume of cards processed and times for processing to provide the supervisor with work statistics,

10

% of Time

- key punching cards to replace damaged ones,
- transferring cards to other auxiliary equipment operators to enable them to take the next step in processing, and
- explaining the operation of the sorter to new employees.

Specifications	Degree	Points
Knowledge		
The work requires knowledge of procedures for operating a sorter and the ability to carry out instructions for sorting and editing users' punched cards. The work also requires the ability to operate a key-punch machine and to clean the sorter and extricate jammed cards.	1	60
Responsibility for Processing		
Job procedures and instructions give the steps to be followed in processing. Some judgment is exercised in suggesting variation of these steps to increase efficiency and in checking the machine for apparent causes of malfunctions.	1	55
Impact		
The objectives of the work are to ensure that card processing meets users' instructions and to detect key punching errors in columns, to provide the supervisor with work statistics and to replace damaged cards. The speed of the sorter establishes the time frame within which objectives must be achieved.	A <sub>1</sub>	55
Supervision		
There is a requirement for explaining the operation of the sorter to new employees.	A <sub>1</sub>	10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 1: OPERATOR SORTING MACHINE (DA-PRO-1)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.              |
| Achievement, Skills or Aptitudes | Skill in operating a sorting machine.   |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position. |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Abilities            | - Ability to follow sorting instructions.<br>- Ability to detect errors. |
| Personal Suitability | - Alertness, persistence and reliability.                                |

NOTE: The above example is for an experienced operator; see next page for an example of trainee requirements.

EXAMPLE OF A  
STATEMENT OF  
QUALIFICATIONS FOR

B.M.P.D. No. 1: OPERATOR SORTING MACHINE (DA-PRO-1)  
(For Selection of Trainees)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.              |
| Achievement, Skills or Aptitudes | - Capacity to learn to operate a sorting machine.   |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position. |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Abilities            | - Ability to follow instructions.         |
| Personal Suitability | - Alertness, persistence and reliability. |

DATA PROCESSING  
Data Production  
B.M.P.D. No. 2

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 2

Level: 2

Descriptive Title: PERIPHERAL EQUIPMENT OPERATOR

Point Rating: 263

Summary

Under the supervision of the shift supervisor, controls printers, tape and disc drives, card-readers, card-punches and composite machines on several non multi-programmed and multi-programmed\* computer systems to enable accurate and timely input and output of information for data processing; controls an optical character recognition machine, and performs other duties.

Duties

% of Time

Controls the printers on several computer systems

- by selecting and positioning forms, according to set-up instructions,
- by mounting and replacing ribbons and carriage control tapes, obtaining replacements, and by checking and adjusting the position of the paper rack to ensure forms fold properly,
- by checking the quality of printed reports and stopping printing where defects are identified, and
- by estimating the blocks of information unsatisfactorily printed, and by keying a message into the central processor\* to backspace and recommence printing,

50

in order to enable accurate and timely output of information.

Controls tape and disc drives, card readers, punches and composite machines connected to computers of several systems

- by selecting reels of magnetic tape and disc packs for input,
- by affixing pre-printed labels onto reels or by completing labels manually from information displayed on a cathode ray tube,
- by mounting reels, cartridges and discs,
- by removing, untangling and rewinding tapes and returning apparently damaged ones to the tape library for examination,

30

\*See Glossary of Terms page IV-6

- by restarting affected jobs when drives drop out of operating status,
- by altering coding on job control\* cards to reallocate tape drives to jobs, and by repunching control cards,
- by demounting tapes, entering information from reels to be kept, onto set-up forms and placing free reels aside for further use,
- by checking physical condition of cards to prevent interruptions in reading, and by loading cards into the machines,
- by typing information onto a console to identify tapes to be created by card reading, and to start execution of spooling jobs, and
- by removing jammed cards, and punching replacement cards,

in order to enable accurate and timely input of data.

Controls an optical character recognition machine

- by adjusting input and output hoppers to match the size of documents to be read,
- by selecting switches to adjust the rate at which documents are fed into the machine, and by loading documents into the machine, and
- by issuing a command through the console to start reading.

15

Performs other duties such as completing reports on equipment malfunctions by noting the behavior of machines and results of the malfunctions to provide a record of break-downs; obtaining supplies; demonstrating how to operate machines to new recruits and commenting to the supervisor on their learning.

5

Specifications

Degree Points

Knowledge

Knowledge is required of a number of procedures - for operating peripheral machines and a keypunch, for selecting input and checking output, and for completing

2

108

Degree Points

reports on equipment malfunctions - as well as knowledge of job control language sufficient to amend control cards used in processing programs and messages for backspacing printers.

#### Responsibility for Processing

The work requires judgment in estimating the backspacing required to reprint unsatisfactorily produced data on reports, positioning the printer's rack and checking the quality of both punched cards received for input, and the quality of output report against established standards.

1 55

#### Impact

The purposes of the work are to enable accurate and timely input and output of information for data processing, to correct where possible errors in printing, and to provide a record of equipment breakdowns. The speed of peripheral equipment for multi-programmed computers establishes the most demanding time frame within which objectives must be attained.

A<sub>3</sub> 90

#### Supervision

There is responsibility for demonstrating to new recruits how to operate machines and for commenting to the supervisor on their learning.

A<sub>1</sub> 10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 2: PERIPHERAL EQUIPMENT OPERATOR (DA-PRO-2)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1. |
| Achievement, Skills or Aptitudes | - Skill in operating peripheral machines such as printers and card readers.            |
| Language Requirement             | - A knowledge of the English language is essential for this position.                  |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Knowledge            | - Knowledge of processing priorities.   |
| Abilities            | - Ability to correct unsatisfactory printing and detect machine malfunctions. |
| Personal Suitability | - Alertness, persistence and reliability.                                     |

NOTE: The above example is for an experienced operator; see next page for an example of trainee requirements.

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 2: PERIPHERAL EQUIPMENT OPERATOR (DA-PRO-2)  
(For Selection of Trainees)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1. |
| Achievement, Skills or Aptitudes | - Capacity to learn to operate peripheral machines such as printers and card readers.  |
| Language Requirement             | - A knowledge of the English language is essential for this position.                  |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Abilities            | - Ability to follow instructions.         |
| Personal Suitability | - Alertness, persistence and reliability. |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 3

Level: 2

Descriptive Title: OPERATOR,  
REMOTE JOB ENTRY TERMINAL

Point Rating: 272

Summary

Under the supervision of the Technical Support Supervisor, operates the card readers of remote job entry terminals to transmit data; operates the terminals' printers to enable accurate printing; maintains a daily log and office supplies to register program runs and to support operation of equipment, provides users with data processing information to assist them in preventing abnormal ends to processing, and performs other duties.

Duties % of Time

Operates the card readers on two remote job entry terminals

- by loading cards into a hopper, clearing storage and taking other steps to start reading,
- by extracting jammed and damaged cards,
- by checking for invalid keypunching on cards that cannot be read,
- by examining for errors the coding of job control cards rejected by the computer, and by punching correct information onto them, and
- by loading single cards to enquire of the computer the status jobs have in the queue\*,

40

in order to enable input of program data and enquiries to the department's and a commercial computer and to enable printing of data, off-line\*, on the terminals' printers.

Operates the terminals' printers

- by aligning paper on sprockets in the first print line position,
- by winding the carriage control tape into position to ensure regular skipping of lines in printing, and installing printer ribbons,
- by checking printed reports for flaws, and

30

- by examining carriage control tapes and replacing damaged ones,  
in order to enable accurate printing of computer reports and off-line printing.

Maintains the daily log, and such supplies as punch cards, carriage tapes, ribbons and printer paper

- by entering incoming program job names and other identifying job information into the log,
- by re-punching standard cards used to make enquiries of the central computer,
- by re-punching damaged control tapes on a tape puncher, and
- by obtaining standard paper for the printer, blank cards and tapes, printer ribbons and other supplies from the divisional supply clerk,

15

in order to register programs run and to support operation of equipment.

Provides users with information on data processing

- by segregating programs that can be processed through the terminal from special processing,
- by outlining procedures required for special printing and processing, indicating submission forms used, and the central units responsible for scheduling and carrying out the special processing,
- by drawing users' attention to new processing procedures in force and new computer equipment, and
- by noting for users where their program output is not that desired because incorrect submission procedures were followed,

10

in order to assist users in preventing abnormal ends to processing.

% of Time

Performs such other duties as

- showing replacement operators how to operate and maintain the terminals and follow office procedures to ensure proper operation, and
- reporting recurring hardware difficulties with the terminals to the supervisor and terminal technicians to obtain correction of equipment problems.

5

Specifications

Degree Points

Knowledge

The work requires knowledge and skill in operating the terminals and a keypunch machine. Knowledge is required of procedures for processing programs through the terminals, of job control language\* sufficient to code job control cards, of data communications language to get in touch with a commercial installation, and of the special printing and processing services available from the Data Processing Division, as well as the procedures for obtaining the services. Familiarity is also needed with the Division's processing procedures and equipment to inform users.

2

108

Responsibility for Processing

Judgment is exercised in comparing input and output with standards, in checking input cards for invalid keypunching and for errors in coding of control data, checking the quality of printed reports, and identifying the cause for flaws in the reports, as well as describing recurring hardware difficulties. Judgment is also exercised in indicating to users where flaws in processing output are caused by incorrect submission procedures.

2

99

Impact

The purposes of the work are to enable input of program data to computers and accurate on-line\*, and off-line printing, to register programs run, provide supplies to operate equipment, to assist users in preventing abnormal

A<sub>1</sub>

55

\*See Glossary of Terms page IV-6 February

Degree      Points

ends to processing and to obtain correction of equipment problems. The speed of remote terminals establishes the time frame within which objectives must be attained.

Supervision

There is responsibility for showing other data processors how to operate the terminals.

A<sub>1</sub>      10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS

FOR

B.M.P.D. No. 3: OPERATOR REMOTE JOB ENTRY TERMINAL (DA-PRO-2)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.      |
| Achievement, Skills or Aptitudes | - Skill in operating remote job entry terminal equipment such as card readers and printers. |
| Language Requirement             | - A knowledge of the English language is essential for this position.                       |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of processing procedures.  |
| Abilities            | - Ability to correct data errors and identify equipment malfunctions.<br>- Ability to keep a daily work log. |
| Personal Suitability | - Tact and courtesy, particularly in dealing with users.<br>- Alertness, persistence and reliability.        |

DESIRABLE QUALIFICATIONS

- Ability to operate a key-punch machine.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 4

Level: 2

Descriptive Title: TAPE LIBRARIAN

Point Rating: 369

Summary

Under the general supervision of the Scheduling and Control Supervisor, controls the storage, issue and dispatch of magnetic tapes to make them available in good condition for computer processing; keypunches cards; resolves library problems to improve library records and services; supervises an assistant tape librarian, and performs other duties.

Duties

% of Time

Controls the storage, issue and dispatch of magnetic tapes used for processing data on a multi-programmed\* computer

- by assigning volume-serial numbers to tapes,
- by registering new tapes, retention dates, release of tapes from current use, and movement of tapes into and out of the library,
- by selecting punched card decks and amending job control\* cards to produce labels and tape listings, and by requesting the computer room shift leader to process them,
- by deciding when tapes should be cleaned,
- by verifying identity of tapes required for processing against a control list of tape contents,
- by checking authority to send tapes outside the installation and to release them for new uses,
- by organizing tapes and records required for processing on night shifts, and
- by monitoring temperature, humidity and cleanliness of the library,

45

in order to make tapes available in good condition for processing.

\*See Glossary of Terms page IV-6 February

of Time

Keypunches cards on daily tape transactions, control data for utility programs\* and shipping labels to register transactions and enable production of control listings and labels. 20

Resolves problems in the library  
- by identifying and correcting causes for abnormal ends to the computer processing of tape records,  
- by verifying the correctness of the internal tape labels, from a computer print-out, 10  
- by canvassing programmers to have sufficient tapes released from current uses to enable continued processing in the computer room, and  
- by investigating the condition of tapes not adequately read by the computer,

in order to improve library records and services.

Supervises an assistant librarian  
- by outlining procedures and priorities to be followed,  
- by assigning work,  
- by demonstrating the operation of the keypunch and tape cleaning machines, and 10  
- by appraising the assistant's work.

Rehabilitates tapes by cleaning them and by cutting defective ones, assembles tapes and accompanying instructions for issue to the computer room, and determines the need for and orders new reels of tapes, inspects new tapes for apparent defects, and discards unusable ones. 15

Performs other duties.

\*See Glossary of Terms page IV-6

Specifications

Degree Points

Knowledge

The work requires knowledge of the characteristics of magnetic tapes and their internal labels, sufficient knowledge of job control language to code control cards to obtain labels and listings such library procedures as the maintenance and use of utility programs, control of magnetic tapes and maintaining them in good condition, operation of tape cleaning and keypunch machines, and procedures for processing library utility programs to identify reasons for abnormal ends to processing.

2 108

Responsibility for Processing

Judgment is required to set the cleaning cycle for tapes, to determine the needs for ordering new ones, and to discard unusable tapes. Choices are made in identifying causes for abnormal ends to the processing of library utility programs, in comparing identity of tapes required with control lists, in checking authority to send tapes outside the library and to release them for new uses, as well as in monitoring condition of tapes.

2 99

Impact

The purposes of the work are to make magnetic tapes available, in good condition, for processing, this includes ensuring that sufficient blank tapes are available to enable continued computer processing; and to improve library records and services. The speed of a multi-programmed computer determines the time-frame within which objectives must be attained.

B<sub>3</sub> 132

Supervision

Control is exercised over the work of the assistant librarian through planning and assigning work, explaining procedures, instructing on the operation of keypunch and tape cleaning machines, and appraising the assistant's work.

B<sub>2</sub> 30

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS

FOR

B.M.P.D. No. 4: TAPE LIBRARIAN (DA-PRO-2)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.             |
| Achievement, Skills or Aptitudes | - Skill in operating tape cleaning and keypunch machines.  |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position. |
| Experience                       | - Experience in data processing operations.  |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of magnetic tape characteristics.  |
| Abilities            | - Ability to control the availability, condition, storage, issue and dispatch of tapes.<br>- Ability to plan and assign work and explain procedures. |
| Personal Suitability | - Effective interpersonal relationships.<br>- Thoroughness, and dependability.   |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 5

Level: 3

Descriptive Title: OPERATOR,  
UNIT RECORD MACHINE

Point Rating: 406

Summary.

Under the general supervision of a supervisor, Auxiliary Equipment, operates the unit record machine, to control card processing; designs the wiring of plug boards\* for a unit record machine\* designed to edit cards for errors in keypunching and to perform other functions, to instruct the machine to process cards in as few passes as possible; tests plug boards for flaws in design and wiring to ensure that the keypunched cards are accurately edited and processed to meet user requirements, and performs other duties.

Duties

% of Time

- Operates the unit record machine
  - by selecting and installing plug boards,
  - by adjusting control dials to activate segments of plug boards for each step in processing, by activating the peripheral column counter,
  - by checking the accuracy of the first processing of jobs, and
  - by loading and unloading cards, and by cleaning and unjamming the machine,

35

in order to control card processing.

Designs the wiring of plug boards for a unit record machine designed to edit cards for errors and to perform such other functions as group sorting, tabulating, sequence checking and counting figures in columns

- by deciding how to group similar data to be edited, and to include as many functions as possible on each panel,
- by drawing logic charts indicating each step in processing required by the user,
- by drawing wiring connections onto plug board diagrams,

\*See Glossary of Terms page IV-6

of Time

- by incorporating into plug board designs, segments of existing panels to perform particular functions, and
- by wiring plug boards from diagrams,

40

in order to instruct the machine to process cards in as few passes as possible.

Tests plug boards for flaws in designs and wiring

- by determining whether test card decks provided by planning officers will edit the full range of errors possible in cards,
- by supplementing decks or requesting new decks from planning officers,
- by loading test decks into the machine, detecting wired connections not functioning and by verifying sorting of cards into intended pockets,
- by checking the machine for hardware faults and wiring to identify causes for malfunctions, and
- by repairing and modifying plug boards and notifying supervisor of suspected hardware faults,

20

in order to ensure that card processing is accurate and meets users' requirements.

Performs other duties such as explaining the operation of the machine to other data processors; completing work tickets and dispatching keypunching errors to the planning officers, and operating other unit record machine to replace other employees.

5

Specifications

Degree Points

Knowledge

The work requires knowledge of the principles and methods of wiring plug boards to perform edits, group sorts, tabulations, sequence checks, column counts and other functions. Knowledge of unit record machines' operation is required as is knowledge of procedures to be followed in documenting and testing the wiring, and in operating the card proving machine.

3

156

Degree Points

Responsibility for Processing

Judgment is required to design wiring of plug boards for editing and tabulating, to draw logic charts and to modify plug boards to meet user requirements. Choices are made in grouping logical steps and conditions in processing, in identifying previously wired panel segments to perform functions, in deciding whether test decks are adequate, and in identifying causes for processing difficulties.

3 143

Impact

The purposes of the work are to instruct a unit record machine to process cards in as few passes as possible, to ensure through testing that card processing is accurate and meets users' requirements, and to control card processing through the machine. The speed of the unit record machine establishes the time frame within which objectives must be achieved.

B<sub>1</sub> 97

Supervision

Shows other data production staff how to perform tasks.

A<sub>1</sub> 10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 5: OPERATOR, UNIT RECORD MACHINE (DA-PRO-3)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.              |
| Achievement, Skills or Aptitudes | - Skill in operating a unit record machine.   |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position. |
| Experience                       | - Experience in data processing operations.   |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Knowledge            | - Knowledge of designs for wiring plug boards to perform edits, group sorts, tabulations, sequence checks and column counts.<br>- Knowledge of processing malfunctions. |
| Abilities            | - Ability to draw logic charts and to test and modify plug board designs.   |
| Personal Suitability | - Alertness, thoroughness and reliability.  |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 6

Level: 3

Descriptive Title: COMPUTER OPERATOR

Point Rating: 424

Summary

Under the general supervision of the supervisor of operations, controls a remote terminal consisting of a computer and other equipment to enable data processing at a commercial computer installation; operates the department's computer off-line\* to process programs, operates a high-speed printer system to enable timely and accurate input of data and printing, and performs other duties.

Duties

% of Time

Controls a remote terminal consisting of a computer, console, card reader, printer, teletype and tape drives

- by mounting carriage tape and paper onto the printer, and by depressing buttons on the computer control panel for on-line\* processing,
- by loading into the reader cards to control the teleprocessing\* software to enable on-line processing,
- by selecting appropriate cards for each step of production jobs, and by making necessary corrections and loading them into the reader,
- by selecting and mounting appropriate tapes containing the teleprocessing software to enable on-line processing,
- by assessing whether commitments to process jobs can be met if processing continues on them at the present rate,
- by reporting to the shift supervisor when processing is falling behind schedule,
- by keying messages into the console to change processing priorities according to instructions,
- by reviewing reports being printed for defects and by deciding to abort jobs in process,
- by checking information on print-outs to identify errors such as job control language\* mistakes,

45

\*See Glossary of Terms page IV-6 February

% of Time

- incorrect tapes, and losses of data at the commercial installation, and
- by reporting causes of aborting jobs to the shift supervisor,

in order to enable accurate data processing at a commercial computer installation.

Operates the system's computer off-line

- by loading into the computer via card reader or tape drives the off-line software\* package and depressing the status buttons on the control panel to commence off-line processing,
- by checking job control cards and keying information onto them to correct errors,
- by loading programs into the computer through the card reader, the tape drives, and
- by keying commands to the Central Processor\* through the console to terminate jobs, set and reset processing, obtain displays and for other purposes,

20

in order to process programs.

Operates a high-speed printer system consisting of tape drives, printers, and tape control and central control units

- by selecting and mounting reels of tape indicated by set-up instructions,
- by selecting appropriate forms and positioning them on the printers, and
- by entering commands into the drives and printer system through control panels to start and stop processing,

25

in order to enable timely and accurate printing of required data.

Instructs other data processors on operation of the terminal to develop them as back-up to the terminal operator; and reviews operating instructions for programs to advise programmers and the shift supervisor of more efficient and complete steps in processing programs.

5

\*See Glossary of Terms page 1V-6 VI-6.2

of Time

- Performs other Computer Room duties
- by correcting paper breaks, card jams, reader checks,
  - by monitoring printers for quality of printing and completeness,
  - by logging all work processed through the Computer Rooms, and
  - by operating auxiliary and paper handling equipment, such as decollators, tape cleaner, keypunch, etc., and replenishing Computer Room stocks from Store Room.

5

Specifications

Degree Points

Knowledge

The work requires knowledge of the methods and procedures employed in operating a remote terminal as well as procedures employed in operating the console of the computer component of a non-multi-programmed system to run the computer off-line. Sufficient knowledge of job control language is required to verify control cards for program decks and to make corrections. Understanding of processing procedures is required to identify reasons for defective processing and to advise on efficiency of processing instructions provided by programmers. Knowledge of data processing terms and expressions is applied in communicating, by telephone or teletype, with Service Bureau personnel. Familiarity is also required of the Tape Library and data control functions, and technical manuals, directives and safety regulations.

3

156

Responsibility for Processing

The work requires judgment to control processing on a non-multi-programmed computer, to report when processing is falling behind schedule, to verify job control cards, and to abort processing of jobs for which output is defective. Recommendations are made to effect changes in processing instructions to improve processing efficiency.

3

143

Degree Points

Impact

The purposes of the work are to enable accurate processing at a remote installation as well as on a high-speed printing system, to process programs on a computer and to advise on more efficient and complete steps in processing. The speed of a non-multi-programmed computer determines the time-frame within which objectives must be attained.

B<sub>2</sub> 115

Supervision

The work involves showing other data processors how to operate the terminal and associated equipment.

A<sup>1</sup> 10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 6 COMPUTER OPERATOR (DA-PRO-3)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.  |
| Achievement, Skills or Aptitudes | - Skill in operating a remote terminal complex consisting of a computer, console, card reader, printer, teletype and tape drives. |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position.                               |
| Experience                       | - Experience in computer operations.  |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of job control language and data processing terminology. |
| Abilities            | - Ability to control processing on a non-multi-programmed computer.  |
| Personal Suitability | - Alertness and reliability.   |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 7

Level: 3

Descriptive Title: JUNIOR CONSOLE OPERATOR

Point Rating: 461

Summary

Under the supervision of the shift supervisor, operates non-multi-programmed\* computers and support consoles\* for multi-programmed computers to ensure accurate and timely processing; supervises peripheral equipment\* operators to ensure they follow procedures and instructions; operates peripheral equipment to provide continued operation in the absence of peripheral equipment operators and during peak work periods; reports defects in machines and processing runs, and performs other duties.

Duties

% of Time

Operates non-multi-programmed computers and support consoles for multi-programmed computers

- by verifying physical condition of input cards, job control information and tape labels against data on set-up instruction sheets, and repunching defective cards,
- by setting up systems for processing,
- by loading cards into readers to initiate processing of jobs in accordance with priority schedules, and
- by keying into the consoles, responses to system and program messages from central processing units,\*

55

in order to ensure accurate and timely processing.

Supervises three operators of such peripheral equipment as card readers, printers and tape drives

- by instructing on operating equipment and solving problems in operating,
- by directing operators to mount tapes, disc packs and card decks,

20

\*See Glossary of Terms page IV-6

% of Time

- by explaining written procedures and literature available on equipment and data processing, and
- by reporting verbally to the supervisor on operators' ability to run equipment,

in order to ensure that operators follow procedures and instructions.

Operates peripheral equipment

- by setting print density, changing worn ribbons and carriage control tapes and mounting report forms on printers,
- by scanning reports being printed for completeness and quality of characters and ink,
- by rectifying problems on printers and restarting printing, and
- by loading cards into card readers and mounting tapes and disc packs onto drives,

10

in order to provide continued operation in the absence of peripheral equipment operators and during peak work periods.

Reports defects in machines and in processing runs

- by observing and describing how machines have broken down,
- by verifying console messages giving reasons for abnormal ends to jobs against reasons in computer print-outs,
- by completing report forms in accordance with program and procedures documentation,
- by recommending that devices not working be placed off-line, and
- by notifying the supervisor of the need to repair equipment or in his absence by calling repairmen,

10

in order to inform data centre management of interruptions in processing.

Performs other duties such as reviewing system-out reports summarizing jobs processed to verify data-set name and other identifying information on jobs and to check that all jobs have been run and outputs correctly identified.

5

Specifications	Degree	Points
<p>Knowledge</p> <p>The work requires knowledge of the methods and procedures to process jobs on support consoles and non-multi-programmed computers, to operate printers, card readers and tape drives, and to rectify problems in operating printers. Knowledge of messages and codes transmitted through support consoles is necessary; sufficient knowledge of job control language* is also required to verify control information on input cards.</p>	3	156
<p>Responsibility for Processing</p> <p>Choices are made through comparing the actual condition of jobs being processed and the operating of machines with various prescribed procedures and standards. Comparing includes verifying the correctness and completeness of job control data and reports being printed, checking the reasons for abnormal ends to jobs and the identity of jobs processed, and detecting operating defects in machine operation. Procedures and standards provided include set-up instruction sheets, priority schedules, messages from the computers and program and procedures documentation. Judgment is required to stop printing of jobs and to recommend that inoperative devices be placed off-line.</p>	3	143
<p>Impact</p> <p>The purposes of the work are to ensure accurate and timely processing on non-multi-programmed computers and support consoles, to ensure, through supervision, that peripheral equipment operators follow procedures and instructions, to provide continued operation of peripheral equipment, and to inform management of interruptions in processing. The speed of support consoles to multi-programmed computers establishes the most demanding time frame within which objectives must be achieved.</p>	B 3	132

\*See Glossary of Terms page IV-6

Degree Points

Supervision

Control of others' work includes instructing three data processors on equipment operation and procedures, giving directions on specific tasks to be performed, and reporting verbally to the shift supervisor on operators' ability to run equipment.

B            30  
2

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 7: JUNIOR CONSOLE OPERATOR (DA-PRO-3)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.                   |
| Achievement, Skills or Aptitudes | - Skill in operating non-multi-programmed computers and support consoles for multi-programmed computers. |
| Language Requirements            | - A knowledge of both the English language and the French language is essential for this position.       |
| Experience                       | - Experience in the use of peripheral equipment such as readers and printers.                            |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of coding systems and job control language.  |
| Abilities            | - Ability to detect machine malfunctions.<br>- Ability to instruct operators and assess their performance. |
| Personal Suitability | - Alertness, initiative and dependability.   |

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 8

Level: 4

Descriptive Title: MAIN CONSOLE OPERATOR

Point Rating: 595

Summary

Under the general supervision of the shift supervisor, operates the console of a multi-programmed\* computer to process as many jobs simultaneously as possible and prevent loss of program data; assigns work to an assistant console operator and five peripheral equipment operators to co-ordinate processing; identifies exceptional conditions to reduce delays in processing to a minimum; recommends improvements to data processing procedures in order to save operators' and equipment time, and performs other duties.

Duties

% of Time

Operates the console of a computer with multiprogramming capacity

- by loading the operating software\* into core\*, readying the nucleus and setting up the basic set of initiators to manage job queues\*,
- by activating peripheral equipment\*, and starting the processing of job queues in accordance with their priorities,
- by identifying jobs whose equipment and time requirements are causing the Central Processing Unit\* (CPU) to wait, fragment core and otherwise detract from the best flow of jobs,
- by deciding to hold job queues, start new initiators, cancel jobs in execution, release jobs for execution and change the job mix to speed processing, and
- by choosing appropriate responses to messages indicating that processing of one or more jobs has stalled or stopped,

50

in order to process as many jobs simultaneously as possible and prevent loss of program data during processing.

\*See Glossary of Terms page IV-6

Assigns work to an assistant console operator and five peripheral equipment operators

- by directing staff on work to be done,
- by instructing on operation of equipment,
- by explaining current changes in operating procedures and systems, and equipment,
- by suggesting to the shift supervisor steps to develop staff and increase their motivation, and
- by counseling them on work problems,

25

in order to co-ordinate processing and improve staff performance.

Identifies exceptional conditions such as errors and equipment malfunctions

- by rectifying errors in the job control language\* on cards for production jobs,
- by directing the computer to provide printed dumps of data from core for jobs coming to abnormal ends, and extracting from the dump the description of the error causing the termination of processing,
- by notifying the programmer and dispatching the print-out to him, and by rectifying input errors if possible to permit rerunning of jobs, and
- by recognizing malfunctions of air conditioning and electrical equipment and reporting them to the shift supervisors or in his absence repairmen,

15

in order to inform management of the nature of processing delays.

Recommends improvements to data processing procedures

- by demonstrating to programmers more economical processing instructions for running programs,
- by explaining to the shift supervisor and operations managers benefits of changing data processing report formats, and
- by pointing out to data processing schedulers desirable changes in schedules,

5

in order to save operators' and equipment time.

\*See Glossary of Terms page IV-6

% of Time

Enters statistical data on a number of report forms relating to processing times, malfunctions, reruns and similar matters, and performs other duties.

5

Specifications

Degree Points

Knowledge

The work requires knowledge of standard procedures, messages and codes used in operating a main console, methods for mixing jobs for simultaneous processing as well as knowledge of job control language, of reasons for messages being sent from the CPU, and of the appropriate responses, especially to messages indicating processing problems. Sufficient knowledge of software and equipment is required to recognize equipment malfunctions, and of operating peripheral equipment to supervise other operators. In addition, understanding of users' processing priorities is required in varying the job mix.

4

204

Responsibility for Processing

Judgment is exercised in ordering the queue of jobs to be processed in terms of holding back, releasing and canceling jobs to speed processing. Choices are made in this job mixing, in discerning reasons for abnormal ends to processing and for other delays and interruptions, and in deciding what actions to take to respond to CPU messages and to problems such as input errors and equipment malfunctions. Recommendations are made on developing staff and improving job scheduling, report formats and programmers' processing instructions.

4

187

Impact

The purposes of the work are to process as many jobs simultaneously as possible, to inform management of the nature of processing delays, to co-ordinate processing through staff and to save operators' and equipment time

C<sub>3</sub>

174

Degree Points

through improving procedures. The speed of a multi programmed computer sets the time frame within which objectives must be achieved.

Supervision

Responsibility for the work of others extends to directing six peripheral equipment operators to take actions required for processing, instructing them on operating equipment, explaining procedures, systems and equipment, suggesting steps to develop staff, and counseling them on work problems.

B<sub>2</sub> 30

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 8: MAIN CONSOLE OPERATOR (DA-PRO-4)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.             |
| Achievement, Skills or aptitudes | - Skill in operating a computer console.   |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position. |
| Experience                       | - Experience in the use of peripheral equipment such as tape drives and on-line printers.          |

RATED REQUIREMENTS

- |                      |   |
|----------------------|---|
| Knowledge            | - Knowledge of computer software and hardware systems.  |
| Abilities            | - Ability to identify errors in job control language and malfunctions in equipment and air conditioning.<br>- Ability to schedule and assign work, set priorities and train and assess operators. |
| Personal Suitability | - Effective interpersonal relationships.<br>- Alertness and dependability.  |

DATA PROCESSING  
Data Production  
B.M.P.D. No. 9

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 9

Level: 4

Descriptive Title: SUPERVISOR, TERMINAL UNIT

Point Rating: 595

Summary

Under the direction of the Chief of the Computer Systems Division, controls processing of the agency's production, scientific and test programs through a remote terminal to ensure accurate and continuous operation; supervises two employees to ensure required unit production and develop staff; validates bills for the services of the remote computer installation to account for expenditures; advises users\* on the terminal unit's services, and performs other duties.

Duties

% of Time

Controls the processing of the agency's production, scientific and test programs through a remote terminal consisting of card processor with plug board\* and memory, and a keyboard terminal

- by checking coding, format and completeness of job control\* cards, correcting coding of statements, and inserting missing, standard cards as outlined in program documentation,
- by sequencing and rescheduling incoming processing jobs according to agency priorities, and availability of time on the card processor,
- by writing and coding control statements to extract information from data files as requested by users, and to perform such utility\* functions as sorting, editing, merging, and dumping information on files,
- by pointing out to users additional control information required for processing, and informing them of computer compiler, hardware and other changes,
- by assigning magnetic tapes stored in the remote installation, authorizing their use and erasure, and assigning blocks of storage on drums and disc to processing programs, depending on the cost of storage media and handling as well as processing speed and priority required,

50

\*See Glossary of Terms page IV-6  
February 1974

VI-9.1

- by establishing indexes and cross-references for a library of punched cards,
- by examining new program operating instructions for clarity, and explaining to programmers problems experienced with the instructions,
- by checking and installing the terminal's plug board, selecting and mounting paper, forms, and carriage control tapes, starting and stopping processing, and selecting and loading cards into the card hopper,
- by deciding to have jobs printed at the installation to improve the daily scheduling of processing,
- by resolving such machine problems as card jams, defective printer drum fuses and the loose plug boards, and describing other malfunctions to the commercial installation's customer engineer,
- by identifying to installation supervisors the priority programs to be processed at a back-up installation in the event of computer failure, and
- by scanning print-outs for completeness, legibility, and messages giving errors in control data, and by making corrections possible and resubmitting the program,

in order to schedule work and ensure accurate and continuous processing.

Advises the agency's users on the terminal unit's services

- by indicating when jobs can be scheduled for processing,
- by informing users of the status of their processing,
- by explaining operating delays and interpreting error messages from the remote computers, and
- by outlining operating procedures and indicating the utility programs available from the installation,

15

in order to ensure users are knowledgeable of services available.

% of Time

Validates bills for services provided by the computer installation

- by checking items in the bills against the unit's logs of transactions, services obtained, equipment rental and supplies, 15
- by compiling and deducting from bills the amount of credits to the unit, and
- by authorizing payments and reporting costs and services to the Chief of Computer Systems, in order to account for expenditures on services.

Supervises two employees engaged in key-punching data from users' documents, operating the terminal and related work

- by establishing duties of staff, setting priorities assigning work and authorizing overtime,
- by training staff in the operation of equipment, the use of control cards and unit procedures, 10
- by interviewing and selecting candidates for positions, and
- by monitoring and appraising the employees' work, discussing appraisals with them, and resolving their work problems,

in order to ensure required unit production and develop staff.

Performs such other duties as

- coding users' input documents for key-punching,
- retrieving data on publications relating to the agency's program, by assigning appropriate key words to users' requests and coding words for key-punching and transmission to the data bank, to provide users with information requested, and 10
- ascertaining work overloading in the unit, and requesting supervisors of other installations to key-punch documents and process cards on unit record equipment, in order to meet production deadlines.

Specifications Degree Points

Knowledge

The work requires knowledge of job control language and the ability to code statements to extract information from data files, to sort, edit, merge and dump data. Sufficient understanding of the messages and codes from remote computers is required to check the list of processing transactions and interpret input errors. Ability is required to apply and explain to others the procedures for operating the remote terminals, running the agency's production programs, controlling tape, drum and disc storage, validating computer services bills and retrieving information from the data bank. Knowledge is also needed of the services offered by the remote installation to advise users, as well as knowledge of the installation's hardware to check job control input.

4 204

Responsibility for Processing

Judgment is required in coding control statements to perform sorts, edits, merges and dumps of data, in sequencing incoming processing work, in correcting errors in control data, authorizing use of magnetic tapes, assigning space on drum and disc storage on the basis of cost and users' needs, explaining problems experienced with program operating instructions, deciding to have output printed at the commercial installation, and identifying priority programs to be sent to a back-up installation for processing. Judgment is also exercised in authorizing payment of bills for computer services and in advising agency users on the services provided by the terminal unit. Initiative is required in ascertaining work overloading and requesting other installations to do key-punching and unit record processing.

4 187

Degree Points

Impact

Two objectives of the work are to ensure accurate and continuous processing through job control data and statements and other control over terminal processing, to ensure users are knowledgeable of the unit's services, to account for expenditures on computer services, to ensure required unit production and develop staff, and to meet production deadlines for key-punching and unit record processing. The speed of the terminal equipment sets the time-frame for achieving objectives.

C<sub>1</sub> 139

Supervision

Supervisory responsibilities for two operators include establishing their duties and priorities, assigning work and authorizing overtime, training staff in operation of equipment and other procedures, interviewing and selecting candidates for positions, monitoring and formally appraising employees' work, discussing appraisals with them, and resolving work problems.

C<sub>2</sub> 65

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 9: SUPERVISOR, TERMINAL UNIT (DA-PRO-4)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.   |
| Achievement, Skills or Aptitudes | - Skill in operating a remote terminal system consisting of a card processor with plug board and memory and a keyboard terminal. |
| Language Requirement             | - A knowledge of either the English language or the French language is essential for this position.                              |
| Experience                       | - Experience in computer operations.   |

RATED REQUIREMENTS

- |                      |  |
|----------------------|--|
| Knowledge            | - Knowledge of job control language, computer terminology and computer code systems.<br>- Knowledge of the characteristics of computer program documentation, and tape library procedures. |
| Abilities            | - Ability to control a terminal unit service.<br>- Ability to select and train staff and assess their performance.   |
| Personal Suitability | - Effective interpersonal relationships.<br>- Initiative and reliability.  |

DESIRABLE QUALIFICATIONS

- Knowledge of simple accounting procedures.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 10

Level: 4

Descriptive Title: GROUP HEAD, TAPE LIBRARY

Point Rating: 630

Summary

Under the general supervision of the Head of Production Control, develops procedures for the magnetic tape and card library to enable effective library control; controls library services to provide tapes and cards required for processing and to resolve problems with tapes; supervises a staff of 8 tape librarians to maintain production and provide for satisfactory staff development; advises users on tape library services to assist them in making effective use of the library, and performs other duties.

Duties

% of Time

Develops procedures for the magnetic tape and card library

- by ascertaining and establishing files and records needed by the library,
- by describing to the Head of Production Control and programmers the regular reports required for library control and by recommending specifications for computer programs to produce the reports,
- by recommending work routines for scheduling the issue, and labeling, storing, cleaning and releasing of tapes, as well as for dispatching tapes to a back-up library, and
- by revising routines to be consistent with new program flow charts and schedules for major production runs,

40

in order to enable effective library control.

Controls library services which include storing and retrieving, organizing and issuing users' tapes and program and job control\* cards, for processing on a number of computers including an on-line\* enquiry system

- by checking new production and test program documentation for completeness and accuracy in terms of tape usage and retention and by informing programmers of information required,

\*See Glossary of Terms page IV-6 February

% of Time

- by varying dates for releasing tapes required in processing runs to ensure data needed at the various stages of production is available, and by authorizing release of tapes to maintain production on computers,
- by estimating the number of tapes and cards to be issued and stored daily, by planning distribution of work to staff, and establishing work priorities in accordance with schedules and unscheduled urgencies,
- by estimating the number of tapes needed annually and recommending purchases,
- by identifying from program documentation master tapes for storage in a remote library,
- by reviewing reports on possible tape malfunctions, by testing tapes to isolate causes of malfunctions, and authorizing repair and discarding of tapes, and
- by reporting on tape performance and recommending kinds of tapes to be purchased,

30

in order to provide tapes and cards when required for processing and to resolve problems with tapes.

Supervises a staff of 8 tape librarians

- by delegating responsibilities and assigning work to staff,
- by assigning librarians to night shifts,
- by informing staff of new procedures, changes in program set-up and in priorities, and by training new tape librarians in library procedures and work, and
- by checking and appraising work, and by recommending promotions, counseling staff on work problems and recommending disciplinary action,

15

in order to maintain production and provide for satisfactory staff development.

Advises users on tape library services

- by outlining library procedures and requirements for using tapes in processing,

of Time

- by explaining tape and disc malfunctions,
  - by indicating the utility programs available to perform such tape operations as searching for data, and
  - by informing users whether tapes are available for processing,
- 10

in order to assist users in making effective use of the library.

Performs such other duties as recommending acquisition of materials for the library to store and retrieve tapes and cards, and overseeing the compilation and maintenance of inventories of tapes and disc packs to account for these supplies.

5

Specifications

Degree Points

Knowledge

The work requires knowledge and ability to develop tape library methods and procedures, particularly those for filing documents and reporting on tapes, scheduling library work, assessing tape performance and malfunctions, and writing job control cards for running library utility programs. The work also requires the knowledge of production scheduling in the installation, in order to coordinate library work with scheduling, and understanding of the work flow of major production runs as set out in flow charts, in order to have tapes and other input available for various stages of production.

4      204

Responsibility for Processing

Initiative and judgment are exercised in establishing files and records, recommending specifications for library utility programs, and recommending library work routines and procedures. Judgment is also exercised in informing programmers of information required to document program input and output, in controlling the storage and

4      187

release of tapes, establishing work priorities and schedules, isolating causes of tape and disc malfunctions, recommending tapes to be purchased and advising users on tape library services.

Impact

The objectives of the work are to enable effective control of the tape library, to resolve problems with tapes, to maintain library production and provide for staff development, and to assist users to make effective use of library services. The speed of multi-programmed computer systems, including batch processing of tapes on an on-line system, establishes the time frame within which objectives must be achieved.

C<sub>3</sub> 174

Supervision

The work requires supervision of 8 tape librarians. Supervisory responsibilities include delegating responsibilities and assigning work to staff, assigning librarians to shifts, training new librarians in their work, checking and appraising work, recommending pro motions, counseling staff on work problems, and recommending disciplinary action.

C<sub>2</sub> 65

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 10: GROUP HEAD TAPE LIBRARY (DA-PRO-4)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.             |
| Achievement, Skills or Aptitudes | - Skill in operating tape cleaning and key punch machines.   |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position. |
| Experience                       | - Experience as a tape librarian.  |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of production and text program documentation procedures, and tape library utility programs.<br><br>- Knowledge of magnetic tape characteristics and storage requirements. |
| Abilities | - Ability to plan for and control a tape library program.<br><br>- Ability to schedule and assign work, set priorities, and train and assess librarians.                              |

- Ability to prepare filing instructions, reports and correspondence.

Personal Suitability

- Tact and courtesy particularly in dealing with users and programmers.
- Initiative and dependability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 11

Level: 5

Descriptive Title: COMPUTER CONTROLLER,  
ON-LINE ENQUIRY SYSTEM

Point Rating: 704

Summary

Under the direction of the System Control Supervisor, controls a computer in a national real-time\* communications system to maintain continued processing in the host computer for an on-line system and prevent loss of the data base; controls processing of tests of new software\* and application programs\* for the system to validate them under operating conditions; operates the console of the back-up multi-programmed\* computer to process as many jobs concurrently as possible; supervises six on-line and peripheral equipment operators to ensure timely performance of their duties and satisfactory development, and performs other duties.

Duties

% of Time

Controls computer processing of programs and enquiries in a real-time on-line system

- by monitoring the system for malfunctions,
- by identifying terminals not functioning and to be restarted, and by obtaining a display of the queue\* of messages waiting from the terminals,
- by directing the computer to by-pass the queue to prevent erasing and loss of the information,
- by entering commands into the computer to restart terminals through a remote master console,
- by notifying the regional computer operators to have terminals resubmit enquiries where queues are lost,
- by noting processing problems originating in the central processing unit, and ascertaining whether the problems arise from particular pieces of equipment, memory, software programs, or messages from the front-end computer,
- by instructing on-line and peripheral equipment operators to switch disc packs from defective drives and to mount required tapes,

40

\*See Glossary of Terms page IV-6

- by restarting processing when the central processor\* stops functioning,
- by informing the controller of the back-up computer to stop processing if the restart procedure fails,
- by recommending to the System Control Supervisor that processing be transferred to the back-up computer, and by restarting on-line processing,
- by canceling the running of the on-line application program when reading of message queues fails, to prevent damage to the data base,
- by choosing a time of low enquiry activity for dumping disc packs to tapes, to store data and provide space for further transactions,
- by stopping message transactions destined for disc packs being dumped or not functioning,
- by starting the data base recovery program and instructing the computer to read data from a back-up tape onto a new disc to reconstruct the missing part of the data base,
- by describing symptoms of computer malfunctions to customer engineers, software analysts and supervisors, and
- by advising regional users when processing is being suspended or limited and by estimating a time for return to normal operations,

in order to maintain continued processing in the host computer for the on-line system and prevent loss of the data base.

Controls processing of new software and application program tests for the on-line enquiry system

- by selecting and entering commands into the computer to simulate operating conditions expected by software analysts, and by varying normal procedures for simulating unusual conditions,

15

\*See Glossary of Terms page IV-6

- by noting the steps taken by the system as a result of these new conditions, and by ascertaining whether the desired results are produced with both normal combination of commands and variations of them,
- by documenting commands given, results obtained, abnormal ends to processing and malfunctions induced, and
- by reporting results to the analysts originating software changes, and suggesting new command procedures to be used with proposed software,

in order to validate the software and application programs under operating conditions.

Operates the console of the back-up multi-programmed computer

- by loading operating software, activating peripheral equipment and starting processing of job queues,
- by detecting from console instruments equipment utilization, and
- by holding job queues, varying the size of processing regions in core on instructions of programmers, starting new initiators, canceling jobs and releasing others for execution,

20

in order to process as many jobs concurrently as possible.

Supervises six on-line and peripheral equipment operators

- by assigning them particular tasks,
- by designating an experienced operator to train new employees in their duties,
- by instructing other employees to operate the consoles in both on-line and multi-programmed processing, and
- by advising the System Control Supervisor of the performance of operators,

20

in order to ensure timely performance of duties and satisfactory staff development.

Performs such other duties as recording events in a number of logs to document malfunctions, identify tapes onto which data base transactions are written, and document other transactions.

5

Specifications Degree Points

Knowledge

The work requires knowledge of the operating system of an on-line real-time computer to control enquiry processing and to simulate operating conditions in processing tests of new software and application programs. Knowledge is required of, the distribution of file applications to data base packs, and the operating procedures in force, including those for restarting enquiries from terminals, recovering processing and reconstructing the data base after component and system malfunctions, transferring processing to a back-up computer, operating the console of a multi-programmed computer and documenting processing transactions. The work also requires understanding of the network of remote data switchers and terminals and procedures for communicating with them, as well as ability to use codes and messages for communicating with central processing units in on-line and multi-programmed systems.

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Responsibility for Processing

Judgment is exercised in detecting the origins of processing problems, informing the controller of the back-up computer when to stop processing, deciding to halt on-line processing, describing computer malfunctions, estimating for remote users when processing will restart after disruptions, selecting commands to simulate operating conditions in program testing, and in choosing times to dump data base packs. Initiative is required in varying command procedures to produce desired results during testing, and in suggesting new procedures to be used with changed software. Judgment is also required to hold job queues and take other actions to process as

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Degree Points

many jobs concurrently as possible, and to describe and report problems in software and application programs.

#### Impact

The objectives of the work are to maintain continued processing in the host computer for a national on-line system and prevent loss of the data base; to reveal flaws in new software and application programs under actual operating conditions; to process as many jobs concurrently as possible, and to ensure timely performance of duties by staff and their satisfactory development. The speed of the on-line enquiry system and the speed of the back-up computer which is multi-programmed, establish the time frame within which objectives must be attained.

C<sub>4</sub> 191

#### Supervision

Supervisory responsibilities for six on-line and peripheral equipment operators include assigning them tasks, designating experienced operators to train new employees in other duties, instructing staff in operating consoles for the on-line and multi-programmed computers and advising the System Control Supervisor of the performance of operators.

B<sub>2</sub> 30

EXAMPLE OF A STATEMENT  
OF QUALIFICATIONS FOR

B.M.P.D. No. 11: COMPUTER CONTROLLER, ON-LINE ENQUIRY SYSTEM (DA-PRO-5)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.             |
| Achievement, Skills or Aptitudes | - Skill in controlling an on-line real-time computer.  |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position. |
| Experience                       | - Experience in operating the console of a multi-programmed computer.                              |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of software and application programs and code systems.<br>- Knowledge of the distribution of application files in data base packs. |
| Abilities | - Ability to detect the origins of processing problems.<br><br>- Ability to maintain continued processing in the host computer.                |

- Ability to schedule and assign work and priorities, train new employees and instruct staff in new software and application program tests.

Personal Suitability

- Tact and courtesy particularly in dealing with users, customer engineers and software analysts.
- Work effectively under pressure of a real time on-line system.
- Initiative and dependability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 12

Level: 5

Descriptive Title: PROCEDURES WRITER

Point Rating: 709

Summary

Under the direction of the Installation Manager, writes new operational procedures to standardize work and provide computer room staff with knowledge to apply innovations in software\* and equipment; assesses current procedures for operating a multi-programmed\* computer, to improve the accuracy and efficiency of processing; maintains manuals for computer operation, to provide staff with current procedures, and performs other duties.

Duties

% of Time

Writes operational procedures for new computer software and equipment and for a changed computer configuration

- by planning and scheduling procedures development to meet target dates for implementing innovations, and revising existing procedures, job duties and work standards,
- by deciding where to obtain information on the innovations,
- by identifying the functions, operating characteristics, controls and potential operational problems of new software and equipment, and by determining the effects they will have on existing procedures,
- by tracing the sequence and nature of actions for processing jobs after innovations are introduced and by drawing workflow charts,
- by selecting relevant information and drafting procedures for the operations manual,
- by discussing proposed procedures with computer room supervisors, the training officer and other knowledgeable people, and
- by recommending procedures to a committee of senior managers and data processors of the Operations Division,

60

in order to standardize work and provide computer room staff with knowledge to apply innovations.

\*See Glossary of Terms page IV-6

% of Time

Assesses current procedures for operating the computer in multi-programming mode, for providing back-up and coping with emergencies

- by observing work methods and practices used in the computer room, analyzing procedural problems and discussing them with computer room supervisors,
  - by noting where such problems are attributable to procedures of sections outside the computer room, and by discussing changes to resolve such problems with supervisors of these sections,
  - by adapting and amending procedures and job duties, and
  - by recommending operational changes in the computer room, including the configuration of equipment and allocation of duties to staff,
- 25

in order to improve the accuracy and efficiency of processing.

Maintains manuals for computer operation by incorporating into them changes and monthly lists, by deciding where entire procedures should be re-written because of the number of amendments, and by requesting that new inclusions be printed and distributed, to provide staff with current procedures.

10

Advises the operations committee, which includes the Installation Manager and Operations Division supervisors, on the development and amendment of procedures and work standards; summarizes the committee's discussions and decisions, and designs, drafts and recommends forms to meet the needs of the division.

5

Performs other duties.

Specifications Degree Points

Knowledge

The work requires knowledge of the functions, operating characteristics and control of multi-programmed computers, the procedures, work organization and flow in the Operations Division, and methods and procedures for operating the data processing equipment. Ability is

5      252

required to translate equipment and software specifications into operating procedures, to analyze workflow, draw workflow charts, and draft forms for use in the Division.

#### Responsibility for Processing

The work requires initiative and judgment to plan and schedule development of new procedures within implementation target dates, to determine the effects innovations will have on existing procedures and work, and to word procedures and job duties for approval of senior managers. Choices are made in identifying operating problems encountered with new software and equipment, in delineating the sequence of processing work, and in analyzing current procedural problems. Recommendations are made to divisional management to adopt procedures, operational changes and forms.

5 231

#### Impact

The purposes of developing and communicating procedures, workflow and job duties are to standardize work and provide computer room staff with knowledge to apply innovations such as new computer equipment and software, and to improve the accuracy and efficiency of processing through revision of operating procedures. The general speed of operations, set by the division's multi-programmed computer, establishes the time frame within which objectives must be attained.

D<sub>4</sub> 216

#### Supervision

There is responsibility for explaining procedures development work to other data processors.

A 1 10

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 12: PROCEDURES WRITER (DA-PRO-5)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1. |
| Achievement, Skills or Aptitudes | - Skill in controlling a multi-programmed computer.                                    |
| Language Requirement             | - A knowledge of the English language is essential for this position.                  |
| Experience                       | - Experience in computer operations.   |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of the functions and characteristics of a computer.<br>- Knowledge of methods and procedures for operating data processing equipment.   |
| Abilities | - Ability to translate equipment and software specifications into operating procedures.<br>- Ability to analyze workflow, draw workflow charts, and draft forms.<br>- Ability to plan and schedule implementation target dates. |

- Ability to conduct meetings and briefings and prepare instructions and manuals.

Personal Suitability

- Tact and patience particularly in explaining new methods and procedures to staff and senior management.

- Thoroughness, persistence, and reliability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 13

Level: 5

Descriptive Title: TRAINING OFFICER

Point Rating: 729

Summary

Under the direction of the Installation Manager, plans and develops the training of the Operations Division's data processors including trainees and senior operators and instructs them on systems, procedures and equipment of the division to enable staff to perform their duties; establishes job assignments and related courses for data processors in the two-year trainee program to ensure trainee development; selects courses outside the department for senior data processors to advise management on staff development; evaluates effectiveness of courses and seminars; supervises the work of the training section, and performs other duties.

Duties

% of Time

Plans and develops the training of the Operations Division's data processors in their work, relating to such subjects as operating systems, procedures and equipment for a multi programmed\* computer with variable tasks

- by discussing staff training needs and timing with supervisors, employees and computer systems officers responsible for systems, procedures and equipment,
- by reviewing other data pertaining to training needs, including tests of trainees' knowledge, and the schedule of their assignments,
- by consulting with computer systems officers and other senior data processors on course content,
- by deciding course subjects and training methods to be used,
- by writing descriptions of processing work and related equipment and systems, for course participants, or by selecting and adapting written material available in the division and from outside, and
- by establishing training priorities and schedules,

20

\*See Glossary of Terms page IV-6

in order to ensure comprehensive and timely communication of information.

Instructs trainees and other data processors

- by lecturing on the operation and scheduling of the central processing unit\* and peripheral equipment\* such as card reader-punchers, tape and disk drives, the Simultaneous Peripheral Operations On-Line (SPOOL) console, and the Administrative Terminal Services, Remote Job Entry and main computer consoles,
- by explaining the concepts and facilities of the current Operating Systems\* for the computer,
- by describing the working and use of job control language\* and utility programs\*,
- by speaking on the division's history, objectives, work and relations with its customers,
- by delineating minimum acceptable skills to be applied in each assignment,
- by supervising trainees closely at the beginning of new assignments to ensure they can apply their new knowledge, and by guiding them to resolve errors in their work, and
- by giving seminars on new systems and procedures in data processing,

40

in order to enable trainees to perform their duties and to implement new systems and procedures.

Establishes job assignments and related courses for a number of data processors in the two-year trainee program

- by testing trainees on all material taught in courses,
- by reviewing supervisors' reports on trainees' work,
- by interviewing trainees on their career goals and motivation,
- by deciding the timing and nature of assignments, and the need for retraining, and
- by informing trainees and supervisors,

10

in order to ensure most effective development of trainees.

\*See Glossary of Terms page IV-6

of Time

Selects courses outside the department for senior data processors

- by identifying and assessing relevant courses described in data processing literature and seminars and by other trainers,
  - by discussing senior data processors' training needs with them and their managers, and
  - by recommending and scheduling courses,
- 10

in order to advise managers on continued career development of staff.

Evaluates the effectiveness of courses and seminars in order to make improvements by discussing participants' reactions with them, by reviewing reports on error rates before and after courses, and by exchanging views with data processing trainers outside the department.

5

Supervises the work of the training section in order to make best use of its resources by delegating responsibility for developing and conducting courses to the assistant trainer, by providing guidance on development of courses and course materials, on instruction methods and on the establishment and maintenance of records, a training library and schedules, and by appraising the assistant's work.

10

Performs such other duties as

- advising data processing trainers outside the division on the design and implementation of courses and career development programs, and
  - training customer operators in procedures for operating remote terminals, making input to the division's computer and obtaining fastest turnaround of their computer jobs.
- 5

Specifications

Degree Points

Knowledge

The work requires the skill to apply training methods to instruct data processors, and requires knowledge of courses available in the data processing field, particularly in computer operations and scheduling. Training other

5      252

data processors requires knowledge of operating and scheduling the central processing unit and peripheral equipment including support consoles, knowledge of the computer's current operating system that processes in multi-variable tasks, knowledge of job control language,\* utility programs used in the organization, and skills required in its data processing positions. In addition, knowledge is required of the organization's work and objectives.

#### Responsibility for Processing

Initiative and judgment are required to select subjects, periods and schedules for courses and methods to be used in training within management's training policy, to describe the data processing work and equipment of the organization within its established procedures and directives, and to establish job assignments and courses for trainees within operational requirements. Advice is provided to management on training of senior data processors and to the organization's customers on developing and implementing training programs for their data processors.

5 231

#### Impact

The purposes of the work are to ensure comprehensive and timely communication of information that data production staff require to perform their duties, to implement new systems and procedures, to ensure effective development of both trainees and senior data processors, and to make best use of the training section's resources. The time frame for achieving objectives is set by the speed of the multi-programmed computer operated by processors being trained.

D<sub>3</sub> 216

#### Supervision

Supervision is provided to an assistant trainer through delegation of responsibility, guidance on course development and methods, and appraisal of the assistant's work.

B<sub>2</sub> 30

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 13: TRAINING OFFICER (DA-PRO-5)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.                 |
| Achievement, Skills or Aptitudes | - Skill in controlling a multi-programmed computer.  |
| Language Requirements            | - A knowledge of the English language is essential for this position.                                  |
| Experience                       | - Experience in the use of peripheral equipment such as card reader-punchers and tape and disc drives. |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of the operating systems, procedures and equipment for a computer complex.<br>- Knowledge of job control language and utility programs.<br>- Knowledge of the principles and practices of training and development. |
| Abilities | - Ability to develop, organize, schedule and evaluate training courses.<br>- Ability to instruct.<br>- Ability to prepare lesson plans, instructions and correspondence.  |

Personal Suitability

- Effective interpersonal relationships.
- Thoroughness, patience and reliability.
- Enthusiasm to arouse interest and build confidence in students.

DESIRABLE QUALIFICATIONS

- Experience as an instructor.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 14

Level: 5

Descriptive Title: SHIFT SUPERVISOR

Point Rating: 764

Summary

Under the direction of the Head of operations, organizes the processing work for a multi-programmed\* computer to maximize utilization of equipment; resolves operating problems to avoid loss of time in processing; supervises a staff of 7 engaged in computer operations to develop staff effectiveness; reports on utilization of equipment to recommend improvements, and performs other duties.

Duties

% of Time

Organizes the processing work for a multi-programmed computer

- by reviewing incoming jobs for priority and classifying them accordingly,
- by noting the core\* and input and output device requirements for production jobs, by comparing these with past requirements and suggesting amendments to programmers,
- by deciding the order in which jobs should be run and whether particular jobs should be loaded into high core,
- by monitoring reports from the System Management Facility (S.M.F.) which indicate core and input-output devices available,
- by determining whether job mix and streaming should be changed and rearranged periodically,
- by directing console operators to change priorities to achieve better mixes of jobs being processed simultaneously, and
- by checking quality of output before authorizing the processing of subsequent steps in production jobs,

25

in order to maximize utilization of equipment.

\*See Glossary of Terms page IV-6

% of Time

Resolves operating problems

- by identifying recurring problems with peripheral\* devices and in operations generally,
- by analyzing operating failures and determining whether they are caused by hardware\*, software\* or application programs\*,
- by deciding whether equipment and tapes should be tested and cleaned to confirm the nature of problems, and not used until repairs are made,
- by getting in touch with repairmen, software experts and programmers, and by informing the head of computer operations of malfunctions causing equipment to go down,
- by interpreting obscure messages from the Central Processing Unit\*,
- by identifying and correcting erroneous job instructions and job control\* data, and
- by deciding at which step jobs should be restarted,

35

in order to ensure continuing operation.

Supervises a staff of 7 engaged in computer operations

- by organizing staff and delegating responsibilities,
- by training staff in methods and procedures to operate the console and peripheral equipment,
- by appraising staff performance,
- by recommending promotions and other personnel actions, and
- by interviewing prospective employees for selection,

15

in order to develop staff effectiveness.

Reports on utilization of equipment

- by compiling figures on utilization, such as volume and time of transactions, from the report of the S.M.F. program and from observations,
- by manually reconstructing such figures from console logs in the event of failure of the S.M.F. program,

15

\*See Glossary of Terms page IV-6

% of Time

- by discerning continuing low usage of peripheral machines and recommending their disposal, and
- by suggesting acquisition of additional peripheral equipment to eliminate bottlenecks,

in order to recommend improved operations in the computer-centre.

10

Proposes and drafts changes in procedures for the computer centre, such as those for emergencies and fire drills; checks locks on doors and electrical switches to maintain security of the computer centre during evening shifts, and performs other duties.

Specifications

Degree Points

Knowledge

The work requires knowledge of the scheduling, operation and capabilities of the computer centre's equipment and the operating system\* of a multi-programmed computer to organize simultaneous processing, set operating priorities and analyze operating failures. Also required is knowledge of the messages and codes from the computer, job control language,\* methods of assessing utilization of equipment and the production runs for which the computer centre is responsible.

5 252

Responsibility for Processing

Initiative and judgment are exercised, within production deadlines, in organizing and controlling the processing of jobs, and in varying the priorities and order of processing. Choices are made in observing equipment defects and failures and deciding whether to shut down peripheral devices pending repair. Recommendations are made on the disposal and acquisition of peripheral devices, changes in computer center procedures, and promotion and deployment of staff.

5 231

\*See Glossary of Terms page IV-6

Degree Points

Impact

The purposes of the work are to maximize the utilization of equipment through organizing processing work and examining statistics on utilization, to ensure continuing operation and to develop staff effectiveness. The speed of a multi-programmed computer establishes the time frame for achieving objectives.

D<sub>3</sub> 216

Supervision

Control over the work of others extends to organizing a staff of seven console and peripheral operators and delegating responsibilities to them, training in operation of peripheral equipment including the main console, appraising performance, recommending promotions and other personnel actions, and interviewing prospective employees for selection.

C 65  
2

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 14: SHIFT SUPERVISOR (DA-PRO-5)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.             |
| Achievement, Skills or Aptitudes | - Skill in controlling a multi-programmed computer.  |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position. |
| Experience                       | - Experience in scheduling computer operations and in supervision.                                 |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of the capabilities of the computer equipment and the operating system of a multi-programmed computer.<br>- Knowledge of code systems and of job control language. |
| Abilities | - Ability to organize and control the processing of jobs, set priorities, assess equipment utilization, identify malfunctions and resolve operating problems.                  |

- Ability to schedule and assign work, and select, train and assess staff.

- Ability to prepare instructions, reports and correspondence.

Personal Suitability

- Tact and courtesy particularly in dealing with programmers, users and repairmen.

- Work effectively under the pressure of deadlines.

- Initiative, thoroughness and reliability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 15

Level: 5

Descriptive Title: GROUP HEAD, SCHEDULING

Point Rating: 764

Summary

Under the direction of the Head of production and control, establishes the sequence for processing jobs on a number of computers to ensure that the order of processing reflects divisional priorities and deadlines and the capabilities of computers; allocates time on computers to processing to co-ordinate scheduling and ensure that computers are fully occupied; recommends modifications in scheduling and related procedures to ensure their effectiveness and stimulate improvement in processing time; advises users on scheduling processing to ensure they know scheduling procedures, and status and timing for processing certain jobs; supervises two schedulers to ensure satisfactory production performance, and performs other duties.

Duties

% of Time

Establishes the sequence for processing jobs on a number of multi-programmed\* and non-multi-programmed computers operating several shifts

- by identifying jobs having a designated priority and those to be processed ahead of others because of divisional commitments,
- by verifying daily master schedules to ensure that each step in processing is specified as outlined in flow charts and documentation,
- by approving detailed processing sequence submitted by scheduling unit staff,
- by re-ordering processing to accommodate urgent jobs,
- by informing computer room supervisors of the sequence of processing, and
- by reporting conflicts in priorities to the Director,

15

in order to ensure that the order of processing reflects divisional priorities and deadlines and the capabilities of computers.

\*See Glossary of Terms page IV-6

% of Time

Allocates time on computers to processing

- by assigning blocks of time to major production runs in a yearly schedule and to file searches and similar operations on a short-term basis,
  - by estimating time required for production processing, on the basis of previous length of runs, volume of input and current delays encountered in processing, and
  - by deciding the jobs to be entered into daily schedules in accordance with priorities and deadlines,
- 30

in order to co-ordinate scheduling of computer processing and ensure that the computers are fully occupied.

Recommends modifications in scheduling and in related procedures to the head of production and control and other officers

- by reviewing production stoppage reports for hardware and software malfunctions, delays and abnormal ends to processing application programs,
  - by identifying patterns in such processing problems,
  - by reporting problems with processing procedures to procedures officers and the operations manager and suggesting procedural changes to speed processing, and
  - by summarizing reasons why deadlines have not been reached,
- 10

in order to ensure effective scheduling and stimulate improvements in time taken to process programs.

Advises users on scheduling their processing

- by explaining procedures for setting processing priorities,
  - by informing users of the time available for processing, the timing for producing output reports, and the current status of processing jobs, and
  - by outlining reasons for delays in processing and for other problems in producing reports,
- 30

in order to ensure users know how work is scheduled and the status and timing for processing certain jobs.

% of Time

Supervises a staff of two engaged in computer scheduling

- by establishing procedures and work routines for scheduling,
- by setting out the duties of staff,
- by informing staff of changes in processing priorities,
- by instructing them on scheduling work,
- by reviewing work output of staff, and
- by appraising their work and recommending that they undertake training.

10

in order to ensure a satisfactory standard of production in the unit and to improve staff performance.

Performs such other duties as

- reviewing calculations prepared by unit staff on the utilization of manpower in the computer room and the total overtime and non-productive time, and reporting to divisional management.

5

Specifications

Degree Points

Knowledge

The work requires knowledge and ability to schedule data processing applications, that is, to arrange the sequence of applications to meet production deadlines, assign blocks of time to production runs and estimate time to process them. Knowledge is required of branch priorities, the stages through which major production runs must go in processing, the capabilities of the computers involved, and the kind of processing problems encountered in the installation that affect its ability to meet deadlines and adhere to schedules. The ability to establish scheduling procedures and work routines is also required.

5

252

Responsibility for Processing

Initiative and judgment are exercised in approving the sequence for processing jobs, re-ordering schedules to accommodate urgent jobs, assigning blocks of time to major production runs, estimating time to process applications, and establishing processing procedures and routines.

5

231

Degree      Points

Judgment is required in identifying patterns in processing problems including malfunctions and abnormal ends to processing, in advising procedures officers of procedural changes to speed processing, and in summarizing reasons why deadlines have not been reached.

#### Impact

The objectives of the work are to ensure that the order and sequence of processing reflect divisional priorities and deadlines as well as the capabilities of computers; to coordinate computer scheduling and ensure that computers are fully occupied, to ensure effective scheduling and stimulate improvements in time taken to process programs; to ensure users are knowledgeable of scheduling, and to ensure a satisfactory standard of production in the scheduling unit and improve staff performance. The speed of both non multi-programmed and multi-programmed computers determine the time-frame for achieving objectives.

D<sub>3</sub>

216

#### Supervision

Supervisory responsibilities include establishing procedures and work routines, setting out duties of a staff of two, informing them of changes in priorities, instructing on scheduling, appraising their work and recommending that they undertake training.

C<sub>2</sub>

65

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 15: GROUP HEAD, SCHEDULING (DA-PRO-5)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.                     |
| Achievement, Skills or Aptitudes | - Skill in controlling a multi-programmed computer.  |
| Language Requirement             | - A knowledge of either the English language or the French language <b>is</b> essential for this position. |
| Experience                       | - Experience in scheduling computer operations and in supervision.   |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of production run processing stages.<br>- Knowledge of determining job priorities, allocating computer time, making time estimates and setting deadlines.   |
| Abilities | - Ability to plan for, organize and conduct computer scheduling programs.<br>- Ability to establish procedures and work routines, set priorities for subordinates, instruct and appraise staff, and resolve processing problems.<br>- Ability to prepare production reports, instructions and correspondence. |

Personal Suitability

- Tact and courtesy particularly in dealing with users.
- Work effectively under the pressure of deadlines.
- Initiative, thoroughness and dependability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 16

Level: 6

Descriptive Title: CHIEF, AUXILIARY EQUIPMENT SECTION

Point Rating: 814

Summary

Under the direction of the Assistant Director Operations, manages the section's work which includes operating such auxiliary equipment as sorters\* and card editors, and includes bursting, decollating and binding printouts, controlling a library of punched cards and receiving and dispatching the data processing division's work, to maintain and improve the timeliness and quality of services to users\* and meet production deadlines and commitments; supervises a staff of 31 data processors and clerical employees to ensure required productivity and to enhance staff development, and performs other duties.

Duties

% of Time

Manages the work of the section

- by defining and establishing duties of staff, delegating responsibilities to unit supervisors, and recommending classification and reclassification of positions,
- by establishing standards of work quality and productivity, by deciding work flow, developing and establishing procedures for the section, and writing instructions on section services for staff,
- by coordinating the section's work with other sections in the division and with users,
- by reviewing with users their requirements for improved and speedier processing and other services from the section,
- by advising users on the section's services, and developing mutually satisfactory work schedules and procedures with users including those from other departments,
- by establishing, in co-operation with the divisional scheduler, an annual schedule for processing in the section,
- by identifying bottlenecks, in production and inadequacies in card library control, and by modifying work procedures and recommending acquisition of new equipment for the section,

75

\*See Glossary of Terms page IV-6

% of Time

- by developing specifications for library computer programs,
- by calculating work load and recommending overtime, additional manpower, and adjustment of schedules to meet targets and accommodate urgent work,
- by recommending the section's annual budget and proposing changes in the established schedule, development of capacity to provide new services to users and discontinuation of services no longer justified by demand, and
- by identifying problems of servicing equipment to equipment company managers and by indicating improvements required,

in order to maintain and improve the timeliness and quality of services to users and meet production deadlines and commitments.

Supervises a staff of 31 data processors and clerical employees through three subordinate supervisors

- by interviewing candidates for section positions,
- by designing and establishing a training program for new employees and recommending courses for other employees,
- by instructing trainees in wiring plug Boards\*, operating equipment, and other work,
- by evaluating progress of trainees and determining assignments and on-the-job training that they require,
- by appraising supervisors' productivity and work performance and by reviewing appraisals of other staff,
- by identifying where staff performance and development could be improved with job rotation, training and transfer, and by discussing work problems with employees, and
- by recommending promotions, demotions and disciplinary actions,

15

in order to ensure required productivity and enhance staff development.

\*See Glossary of Terms page IV-6

February 1971

VI-16.2

of Time

Performs other duties such as discussing with others in the data processing field the merits and capabilities of auxiliary and related equipment and new library systems to keep abreast of developments that would improve the section's efficiency.

10

Specifications

Degree Points

Knowledge

The work requires knowledge and ability to organize and schedule processing and clerical work, knowledge of the auxiliary equipment's capacity, as well as that of the computer to ensure co-ordination with the computer room, and the ability to develop standards and procedures for the section and to write instructions for staff. The work also requires knowledge of, users' requirements to ensure effective services, methods of training new employees in operating, wiring plug boards and in other work of the section and knowledge of innovations in auxiliary and paper handling equipment and methods of processing.

5

252

Responsibility for Processing

Initiative and judgment are exercised in establishing standards of work quality and productivity, deciding the flow of work in the section, establishing the section's procedures and schedules, coordinating the section's work with other units and users and recommending changes in the section's equipment and budget to meet changing demand. Initiative and judgment are also exercised in advising users of section services and developing mutually satisfactory work schedules and procedures with users, improving procedures, recommending development of computer programs for the card library, and informing equipment companies of the servicing requirements of the section.

5

231

Degree Points

Impact

The objectives of the work are to maintain and improve the timeliness and quality of services to users, to meet production deadlines and commitments, to ensure required productivity and to enhance staff development. The speed of auxiliary equipment establishes the time frame within which objectives must be obtained.

D<sub>1</sub> 181

Supervision

The work involves supervision of 31 employees engaged in auxiliary and paper handling operations, card library and reception services. Supervisory responsibilities include establishing staff duties and responsibilities, recommending additional manpower requirements and overtime, interviewing candidates for positions, implementing an employee training program and instructing staff in the section's work, evaluating the progress of trainees, appraising supervisors' work, reviewing appraisals of other staff and discussing work problems with them, assigning staff to new duties, recommending that they be trained and transferred for their development, and recommending promotions, reclassifications, demotions and disciplinary actions.

D<sub>4</sub> 150

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 16: CHIEF, AUXILIARY EQUIPMENT SECTION (DA-PRO-6)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.                                 |
| Achievement, Skills or Aptitudes | - Skill in operating a variety of auxiliary equipment such as sorters, card editors, busters, decollators and binders. |
| Language Requirement             | - A knowledge of both the English language and the French language is essential for this position.                     |
| Experience                       | - Experience in data processing operations and in supervision.   |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of characteristics and capacities of auxiliary equipment and computers.<br>- Knowledge of innovations in auxiliary and paper handling equipment and methods of processing.<br>- Knowledge of administrative practices and budget preparation. |
| Abilities | - Ability to plan for, organize and control auxiliary equipment operations.   |

- Ability to determine organizational needs and develop work standards and procedures.
- Ability to schedule and assign work, set priorities, select, train and assess staff and resolve operating problems.
- Ability to conduct meetings and interviews and prepare instructions, specifications, work manuals, reports and correspondence.

Personal Suitability

- Tact and courtesy particularly in dealing with equipment companies and users.
- Initiative, thoroughness and reliability.
- Work effectively under the pressure of meeting deadlines.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 17

Level: 6

Descriptive Title: SHIFT MANAGER

Point Rating: 854

Summary

Under the direction of the Operations Manager, manages processing on multi-programmed\* computers, during a shift, to reach production deadlines, to maintain service to real-time on-line\* system users, and to meet standards for equipment utilization; recommends procedural and other changes in the installation to improve the shift's efficiency; supervises a staff of 17 engaged in operating computers and auxiliary equipment to ensure satisfactory development and utilization of staff, and performs other duties.

Duties

% of Time

Manages, for a shift, processing on multi-programmed computers, including one used as the host computer for an on-line enquiry system, and on related equipment such as support computers and auxiliary equipment

- by screening processing requirements for production and test programs and by organizing them according to urgency, demand for processing resources and adherence to standards that establish the streaming of programs,
- by altering night shift processing schedules to accommodate priority work and that remaining from previous shifts and to achieve a good utilization of hardware, or during the day shift by discussing required changes with the scheduler and jointly establishing a new schedule,
- by informing the tape librarian and printing control staff of modifications in schedules and set-up instructions that change requirements for tapes, forms and other supplies,
- by directing system console technicians to change definition of memory partitions and job mixes to increase efficiency,
- by transferring personnel between processing units to replace absent employees and to cope with work overloads,

65

\*See Glossary of Terms page IV-6

- by interpreting coded computer print-outs indicating stages of Processing at which hardware malfunctions have occurred, and by determining remedial actions required,
- by describing servicing requirements to customer engineers, software\* analysts and repairmen, indicating the problems with hardware, software, the on-line system, and the cooling and power systems to be resolved, and by scheduling use of computer systems by the analysts and customer engineers to correct system malfunctions,
- by estimating the duration of partial and total processing interruptions,
- by directing the transfer of processing from support consoles and auxiliary\* equipment to alternative installations in the event of overload or equipment failure and by recommending transfer of main production to a back-up installation, and
- by deciding what programs can be processed on a partially operating system,

in order to reach production deadlines, maintain service to on-line system users, and meet standards for equipment utilization.

Recommends procedural and other changes in the installation to the Operations Manager

- by reviewing monthly equipment utilization reports for recurring problems in equipment usage, work procedures, and software, and by indicating such possible resolutions as replacing pieces of equipment and developing procedures and utility programs\*,
- by outlining instructions for operating new pieces of equipment and for implementing new software programs,
- by describing the need for such procedures as contracting work out to other installations, and
- by reporting problems being encountered in implementing new procedures and software programs,

10

in order to improve the shift's efficiency.

\*See Glossary of Terms page IV-6

% of Time

Supervises a staff of 17, engaged in operating computers and auxiliary equipment during a shift, through three subordinate supervisors

- by deciding rotation, assignments and on-the-job training of shift staff,
- by instructing senior console operators in their work and delegating to them the training of operators,
- by reviewing the productivity and quality of the staff's work, by writing performance evaluations and recommending such measures for staff development as promotion and formal training, 20
- by counseling staff on work problems and recommending disciplinary action to correct behavior problems,
- by proposing to the Operations Manager position reclassifications and changes in shift resources to cope with the work of the shift, and
- by recommending criteria for selecting new staff and, as a member of selection boards, by interviewing candidates for data processing positions,

in order to ensure satisfactory development and utilization of staff.

Performs such other duties as controlling the safety and security of the installation. 5

Specifications

Degree Points

Knowledge

The work requires knowledge of the processing commitments of the computer services organization, the flow of work within it, standards of equipment servicing and actions required to resolve computer and real-time system mal functions or obtain resolution by experts, and procedures for transferring operations to a back-up installation. Also required is knowledge of methods for determining equipment utilization and effectiveness, for coordinating work between a number of units, and for training staff, as well as the ability to outline procedures for operating new equipment software. 6 300

#### Responsibility for Processing

Initiative and judgment are exercised in scheduling processing work, especially during night shifts, in directing that memory partitions and job mixes be changed to reach deadlines and improve efficiency, in recommending replacement of equipment and development of procedures and utility programs, and in outlining instructions to be used in operating new equipment. Judgment is also required in determining remedies for malfunctions, in scheduling the use of computers by these experts, and in recommending that main production be transferred to a back-up installation.

5 231

#### Impact

The objectives of the work are to reach production dead lines for processing on a number of computer systems, to maintain service to on-line system users, and to meet standards for equipment utilization; to improve computer room procedures and shift efficiency, and to ensure satisfactory development and utilization of staff. The speed of both multi-programmed and real-time on-line enquiry computer systems establishes the time frame within which objectives must be attained.

D<sub>4</sub> 233

#### Supervision

The work requires supervision of a staff of 17 computer and auxiliary equipment operators. Supervisory responsibilities include deciding rotation, assignments and on-the-job training of shift staff, transferring staff between units to cope with workloads, instructing senior console operators on their work and delegating training of other operators, reviewing and appraising staff productivity and work, recommending promotion, formal training and other measures for staff development, counseling staff on work problems, and recommending disciplinary action, proposing position reclassifications and changes in the number of positions required, recommending criteria for selecting new staff and interviewing candidates for positions.

C<sub>3</sub> 90

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 17: SHIFT MANAGER (DA-PRO-6)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1. |
| Achievement, Skills or Aptitudes | - Skill in operating a multi-programmed computer and auxiliary equipment.              |
| Language Requirement             | - A knowledge of the English language is essential for this position.                  |
| Experience                       | - Experience in computer operations and in supervision.                                |

RATED REQUIREMENTS

- |           |   |
|-----------|---|
| Knowledge | - Knowledge of the characteristics and capabilities of a computer system.       |
|           | - Knowledge of coding systems and job control language.                         |
|           | - Knowledge of methods for determining equipment utilization and effectiveness. |
| Abilities | - Ability to schedule production and test programs.                             |
|           | - Ability to identify hardware malfunctions and determine remedial action.      |

- Ability to plan for, assign and schedule work, set priorities, select, train and assess staff, and resolve operating problems.
- Ability to prepare instructions, reports and correspondence.

Personal Suitability

- Tact and courtesy particularly in dealing with users, customer engineers, and software analysts.
- Work effectively under pressure of meeting deadlines.
- Initiative, thoroughness and dependability.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 18

Level: 7

Descriptive Title: : REGIONAL SUPERVISOR,  
DATA PROCESSING

Point Rating: 983

Summary

Under the direction of the Manager, Regional Pay Centre, plans the work of the data processing installation to ensure that it is able to produce output to meet the region's requirements; organizes the staff to maintain satisfactory performance and development; controls the work of the installation to maintain continuous production to meet deadlines and to ensure full utilization of processing resources, and performs other duties.

Duties

% of Time

Plans the work of the data processing installation consisting of a multi-programmed\* computer, auxiliary equipment\* and support services including key-punching and tape library

- by assessing the efficiency of data processing schedules, procedures, and routines, and the installation's capacity to process projected workload and types of programs,
- by developing daily work schedules,
- by reviewing processing resource utilization,
- by recommending acquisition of equipment and other resources, and the need for changes in utility programs\* and software\* to increase the capacity of the installation,
- by examining the need for casual staff, overtime and additional shifts and by making recommendations to the regional manager,
- by recommending that processing work be done by contractors,
- by revising processing procedures, and
- by developing procedures for transferring operations to back-up installation and for coping with emergencies

55

in order to ensure that the installation is able to produce output to meet the region's requirements.

\*Sep Glossary of Terms page IV-6  
February 1974

% of Time

Organizes, through five subordinate supervisors, a staff of 63 engaged in computer and auxiliary equipment operations, key-punching and related work

- by establishing duties and objectives for staff,
- by delegating responsibilities to subordinate supervisors,
- by guiding staff on new procedures,
- by assigning staff to shifts and re-allocating them to cope with short-term fluctuations in workload,
- by deciding staff training needs, approving internal courses and recommending staff attend outside courses,
- by evaluating work performance,
- by recommending disciplinary actions,
- by recommending man-year requirements, and
- by interviewing candidates for casual and continuing employment,

25

in order to co-ordinate the data processing section's units and to maintain satisfactory staff performance and development.

Controls the work of the installation

- by identifying hardware and software problems and getting in touch with customer engineers or software programmers to have problems remedied,
- by notifying programmers at headquarters of operating difficulties encountered with application programs\*,
- by deciding when to transfer operations to a back-up installation,
- by reviewing reports of machine utilization and operators' productivity,
- by instituting changes in data processing procedures and by directing staff to adhere to directives and processing standards, and
- by reviewing the standard of machine maintenance,

15

in order to maintain continuous production to meet deadlines for producing warrants for cheques and to ensure implementation of computer operations policy.

\*See Glossary of Terms page IV-6

% of Time

Performs such other duties as  
 - advising the regional manager and other line staff  
 on the capabilities and procedures of the installation.

5

Specifications

Degree Points

Knowledge

The work requires knowledge and ability to plan and control the work of a data processing installation, to develop and revise procedures and schedules, to identify where new equipment or changes in software are needed to increase production and to advise on the installation's processing capacity. Knowledge is also required of the policy and procedure for transferring operations to a back-up installation, of the objectives and production deadlines of the installation, and of the standards for servicing and maintaining its equipment.

6 300

Responsibility for Processing

Initiative and judgment are required in planning and controlling the installation's work to produce output required by the regional pay centre. Initiative and judgment include ascertaining the efficiency of the installation's schedules, procedures and routines, developing new ones, recommending acquisition of equipment, changes in software, hiring of new staff and contracting processing work out, as well as identifying processing problems encountered with hardware, software and application programs, and deciding to transfer operations to a back-up installation. Judgment is also required to advise the regional manager and other line staff on the capabilities and procedures of the installation.

6 275

Impact

The objectives of the work are to ensure that the installation is able to produce output to meet the region's requirements, to coordinate the section's units and to maintain satisfactory staff performance and development, to maintain continuous production to meet deadlines for producing warrants for cheques as well as to ensure implementation of computer operations policy. The speed and capacity of a multi-programmed computer to produce warrants set the time frame for attaining objectives.

E<sub>4</sub> 258

Supervision

Supervisory responsibilities include establishing duties and objectives of sixty-three staff, delegating responsibilities to subordinate supervisors, guiding staff on new procedures, assigning staff to shifts and reallocating them to cope with short-term fluctuations in workload, deciding training needs, approving internal courses and recommending staff attend outside ones, evaluating work performance, recommending disciplinary actions, recommending man-year requirements, and interviewing candidates for casual and continuing employment.

D<sub>4</sub> 150

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 18: REGIONAL SUPERVISOR, DATA PROCESSING (DA-PRO-7)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |  |
|----------------------------------|--|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.         |
| Achievement, Skills or Aptitudes | - Skill in controlling a multi-programmed computer.  |
| Language Requirement             | - A knowledge of the English language is essential for this position.                          |
| Experience                       | - Experience in scheduling the work of a computer installation, and experience in supervision. |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of the characteristics and capabilities of a multi-programmed computer, auxiliary equipment and support services.<br><br>- Knowledge of administrative practices.  |
| Abilities | - Ability to plan for, organize and control a computer data processing service.<br><br>- Ability to determine personnel and material requirements and prepare budget estimates.<br><br>- Ability to set objectives and assign work, set practices and select and assess staff. |

- Ability to conduct meetings and briefings, and prepare instructions, reports and correspondence.

Personal Suitability

- Tact and courtesy particularly in dealing with senior management, head quarters programmers and supervisors of other installations.
- Initiative, thoroughness and reliability.
- Work effectively under pressure of dead lines and peak periods.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 19

Level: 7

Descriptive Title: SUPERVISOR,COMPUTER OPERATIONS

Point Rating: 983

Summary

Under the direction of the Chief, Computation Bureau, manages the operations of the department's multi-programmed\* computer which provides services to users\* in a number of departments, to maintain and improve operational efficiency, and meet established standards of service to users; supervises the installation's staff of 34 through four subordinate supervisors; advises users on the installation's operations to maximize the use of the installation's services and ensure understanding of its procedures and capabilities, and performs other duties.

Duties

% of Time

Manages the operations of the department's multi-programmed computer which provides services to users of a number of departments

- by writing and establishing procedures for operating hardware\*, reporting malfunctions, providing tape library services, advising users on computer operations, and maintaining safety and security in the installation and the remote sites,
- by directing shift supervisors on objectives and scheduling of work and by reviewing operating problems with them,
- by reviewing reports of staff productivity and the installation's performance, and by monitoring implementation of procedures and progress in reaching deadlines,
- by analyzing recurring malfunctions and delays in computer operations and identifying improvements required in procedures and equipment servicing,
- by identifying apparent and suspected problems with software\* that result in lowered operating performance and informing software analysts,
- by determining times to stop computer processing for software testing or hardware analyses by the customer engineer,

50

\*See Glossary of Terms page VI-6

- by identifying hardware usage and needs, by recommending acquisition of new peripheral and tape library equipment to increase processing capacity and meet projected users' demand, and by writing general specifications for such equipment,
- by drawing a new installation configuration to accommodate equipment.
- by establishing additional shifts and altering daily processing schedules to meet unpredicted urgent workload, and
- by recommending the transfer of operations to a back-up installation in the event of computer failure, and recommending that work be contracted out because of demand for processing,

in order to maintain and improve operational efficiency, and meet standards of service to users.

Supervises the installation's staff of 34 engaged in operating the computer, peripheral equipment, remote terminals, and auxiliary equipment and in providing tape library services, through four subordinate supervisors

- by establishing and assigning duties of computer operations staff and delegating responsibilities to three shift supervisors and the senior tape librarian,
- by assigning staff to shifts,
- by transferring staff to replace absent employees and meet unpredicted workloads,
- by scheduling and approving leave,
- by appraising work performance of supervisors, discussing appraisals with them, reviewing appraisals made on the performance of other computer operations staff, identifying strengths and weakness of performance with each employee, and by recommending promotions,
- by identifying the developmental needs of staff, planning and scheduling on-the-job training, courses and new work assignments, and monitoring staff progress through tests,
- by counseling employees on attendance, work problems and productivity, and by recommending disciplinary action, and

35

% of Time

- by interviewing prospective employees for positions, in order to ensure the installation is manned by capable staff.

Advises departmental and other customers on the use of the installation

- by explaining the services, capabilities and procedures of the installation,
- by describing the standard of services provided and explaining to users disruptions and delays in processing,
- by providing users with procedures and instruction for operating their remote terminals, and
- by determining for users whether the installation can meet target dates for processing and where necessary by suggesting alternative dates,

15

in order to maximize the use of the installation's services and ensure understanding of processing procedures and capabilities.

Performs other related duties.

Specifications

Degree Points

Knowledge

The work requires knowledge of the services provided by a multi-programmed computer installation with remote batch and inter-active remote terminals, and an understanding of the equipment's capabilities, as well as the problems and malfunctions that occur in the system. The work requires ability in developing procedures for computer operations and tape library services, in employing methods to improve the performance and efficiency of equipment and staff, and in advising users how to use computer services to meet their objectives. Also required is knowledge of standards for equipment servicing and of procedures for transferring operations to a back up installation.

6 300

#### Responsibility for Processing

Initiative and judgment are required, to establish and improve operating and other procedures for the operations and tape library staff, to determine times to stop computer processing when system difficulties occur and to enable software testing and/or hardware analysis,\* to identify equipment needs and recommend acquisitions, and to recommend that operations be transferred to a back-up installation and that work be contracted out. Judgment is exercised in explaining to users the installation's equipment, capabilities and services, and in advising users how to employ the installation's services to meet their objectives.

6 275

#### Impact

The objectives of the work are to maintain and improve the efficiency of a multi-programmed computer installation, reach processing deadlines, and meet established standards of service to users; to ensure that the installation is manned by capable staff, to maximize the use of the installation's services and to ensure user understanding of its procedures and capabilities. The speed and resources of a multi-programmed computer, capable of processing numerous programs concurrently, establish the time frame within which objectives must be attained.

E<sub>3</sub> 258

#### Supervision

The work requires supervision of 34 computer operations and tape library staff. Supervisory responsibilities include establishing duties of staff and delegating responsibilities to supervisors, assigning staff to shifts, transferring staff within the operation, scheduling and approving leave, appraising work performance of staff and discussing strengths and improvements needed with each employee, recommending promotions, planning and scheduling development and training of employees, counseling on attendance, work problems and productivity, and recommending disciplinary action.

D<sub>4</sub> 150

\*See Glossary of Terms page IV-6

EXAMPLE OF A  
STATEMENT OF QUALIFICATIONS  
FOR

B.M.P.D. No. 19: SUPERVISOR, COMPUTER OPERATIONS (DA-PRO-7)

ESSENTIAL QUALIFICATIONS

BASIC REQUIREMENTS

- |                                  |   |
|----------------------------------|---|
| Education                        | - Completion of grade ten or achievement of a satisfactory score on PSC Examination 1.                    |
| Achievement, Skills or Aptitudes | - Skill in controlling a multi-programmed computer.   |
| Language Requirement             | - A knowledge of both the English language and the French language <b>is</b> essential for this position. |
| Experience                       | - Experience in computer operations and in supervision.   |

RATED REQUIREMENTS

- |           |  |
|-----------|--|
| Knowledge | - Knowledge of the capabilities and problems of a multi-programmed computer installation.  |
|           | - Knowledge of standards for equipment servicing and of procedures for transferring operations to a back-up installation.        |
| Abilities | - Ability to plan for, organize and control a computer data processing service.  |
|           | - Ability to establish, improve, and implement operating procedures and standards for computer operators and tape library staff. |
|           | - Ability to determine equipment and personnel requirements.   |

- Ability to schedule and assign work, select and assess staff and resolve operating problems.
  - Ability to conduct meetings and briefings, and prepare instructions, reports and correspondence.

Personal Suitability

- Initiative, thoroughness and dependability.
- Tact and courtesy particularly in dealing with users, contractors, and senior management.
- Work effectively under pressure of deadlines and peak volumes.

Classification and Selection Standard - Norme de classification et de sélection

Data Processing - Traitement des données

RECORDS OF AMENDMENT - REGISTRE DES MODIFICATIONS

Amendment No./ Modification n	Date	Inserted by/ Faite par	Remarks/Remarques
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