Treasury Board of Canada Secretariat
Secrétariat du Conseil du Trésor du Canada

CLASSIFICATION STANDARD

ELECTRONICS

TECHNICAL CATEGORY

Canada

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ELECTRONICS

TECHNICAL CATEGORY

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CONTENTS

INTRODUCTION

This classification standard describes the plans to be used to evaluate jobs that are allocated to the Electronics Group. It consists of an introduction, definitions of the technical category and of the occupational group, point rating scales and bench-mark position descriptions.

Point Rating

Point rating is an analytical, quantitative method of determining the relative value of jobs. Point rating plans define characteristics or factors common to the jobs being evaluated, define degrees of each factor and allocate point value to each degree. The total value determined for each job is the sum of the point values assigned by the raters.

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

Factors

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

Point Weighting and Distribution

The point weighting of each factor reflects its relative importance. Similarly, points are distributed to the factors or elements in an arithmetic progression.

Rating Scales

In the rating plan the following factors, weights and point values are used.

Factors	Percentage of Total Points	Point Values Minimum	Maximum
Skill and Knowledge	42.5	50	425
Responsibility	42.5	50	425
Working Conditions	7.5	10	75
Supervisory Responsibility	7.5	10	75

Bench-mark Positions

Bench-mark position descriptions are used to exemplify degrees of factors. Each description consists of a brief summary, a list of the principal duties with the percentage of time devoted to each, and specifications describing the degree of each factor to which the position is rated. The bench-mark positions have been evaluated and the degree and point values assigned for each factor are shown in the specifications.

The rating scales identify the bench-mark position descriptions that exemplify each degree. These descriptions are an integral part of the point rating plan and are used to ensure consistency in applying the rating scales.

Use of the Standard

There are six steps in the application of this classification standard:

1. The position description is studied to ensure understanding of the position as a whole. The relation of the position being rated to positions above and below it in the organization is also studied.

2. Allocation of the position to the category and the group is confirmed by reference to the definitions and the descriptions of inclusions and exclusions.

3. Tentative degrees of each factor for the position being rated are determined by comparison with degree definitions in the rating scales. Uniform application of degree definitions requires frequent reference to the description of factors and the notes to raters.

4. The description of the factor in each of the bench-mark positions exemplifying the degree tentatively established is compared with the description of the factor in the position being rated. Comparisons are also made with descriptions of the factor in bench-mark positions for the degrees above and below the one tentatively established.

5. The point values for all factors are added to determine the tentative total point rating.

6. The position being rated is compared as a whole to positions to which similar total 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 the determination of the relative value of jobs in each occupational group. Jobs that fall within a designated range of point values will be regarded as of equal difficulty and will be assigned to the same level.

Where a position is accorded a total of 155 points or less, that position should be assessed against the level determinants for the EL-01 and EL-02 levels to determine its classification.

Level Determinant 1. - Takes part in equipment maintenance training to improve level of proficiency and assists in the maintenance of electronic equipment or takes part in radio communications training programs in order to develop a basic understanding of radio communications systems and related laws and regulations.

Level Determinant 2 - Performs basic electronic maintenance according to detailed instructions and takes part in equipment maintenance training to improve level of proficiency or takes part in radio communications training programs in order to acquire an understanding of advanced radio communications systems, develop interpersonal communications skills and assist in the application of related laws and regulations.

LEVELS AND LEVEL BOUNDARIES

Level	Level Boundaries
EL-3	156-270
EL-4	271-385
EL-5	386-500
EL-6	501-615
EL-7	616-730
EL-8	731-830
EL-9	831+

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.

POSITION CLASSIFICATION AND EVALUATION PLAN

SKILL AND KNOWLEDGE FACTOR

This factor is used to measure the difficulty and/or complexity of work in terms of the technical knowledge and the program knowledge required to perform the duties of the position.

DEFINITIONS

SPECIALIZED TECHNICAL KNOWLEDGE AND SKILLS

"Specialized technical knowledge and skills" considers the breadth and depth of knowledge and degree of skills required in areas such as design, installation, maintenance and inspection of electronic and associated equipment and systems which are not considered under program knowledge.

PROGRAM KNOWLEDGE

Program knowledge considers the breadth and depth of knowledge in one or more programs in such areas as rules, procedures, operations, objectives, policies and legislation including inter-relationships with other departments, agencies, levels of government or the private sector. This includes such areas as finance, personnel, facilities, health and safety, security, training, project management and general administration.

Notes to raters

1. The degree of each element tentatively selected is to be confirmed by direct comparison of the position being rated with the duties and specifications of the bench-marks exemplifying that degree.

2. In determining whether a position has a "significant requirement to perform electronic systems analysis or design" as defined in degree C of Specialized Technical Knowledge and Skills, raters should consider whether the position is involved in significant system analysis and/or design functions. Examples of such functions are: the development of initial designs; determining systems requirements and evaluating the technical feasibility of the systems; the analysis of systems degradation and the identification and correction of systems' faults; and completing the design of novel instruments and systems.

RATING SCALE - SKILL AND KNOWLEDGE

FACTOR PROGRAM KNOWLEDGE SPECIALIZED TECHNICAL KNOWLEDGE

AND SKILLS

	A	8	C	D
	Knowledge and skills to perform basic maintenance functions	Knowledge and skills to install, maintain or regulate complex equipment or systems	Extensive general knowledge of complex electronic systems in use to provide technical direction; or significant requirement to perform electronic system analysis or design	Significant requirement to formulate technical standards or procedures, or recognized subject matter technical expert
1 Knowledge of established rules & procedures and administrative practices and techniques	50	111 14. Electr. Systems Technician 16. Intrum. Methods R&D ° Technologist 17. Electr. Techn.	169 11. Electronic Syst. Analyst 12. Electr. Dev. Technologist	226
2 Moderate knowledge of program operations, policies, objectives, procedures and management. practices and techniques	119	179 10. Tech. Serv. Station Manager 13. Field Instal. & Constr. Techn. 15. Radio Inspector	238 7. Life Cycle Material Manager 8. Tech. Serv. Duty Manager 9. Techn. Instr., Elect. Systems	295 6. Satellite Nav. Systems Techn.
3 Significant know-Ledge of program operations, policies, objectives, procedures and management practices and techniques	185	245	304 2. Techn. Serv. Area Manager 4. Reg. Supt., Elect. Maint. 5. Section Head	362 3. Supervisor, Instal. & Maint. Standards
4 Superior knowledge of program operations, policies, objectives, and an extensive body of rules as well as management practices and techniques	247	308	368 1. Regional Supt. Elect. Maint.	425

RESPONSIBILITY FACTOR

This factor is used to measure the difficulty and/or complexity of the work in terms of the scope for initiative and judgment, and the impact of action taken or decisions made.

Definitions

"Scope for initiative and judgment" refers to the freedom to take particular courses of action, negotiate or make decisions with respect to the framework of guidelines, directives and procedures or precedents established for a project or to support the provision of a service. It will also apply to:

monitoring and evaluating the progress or activities of consultants and contractors; and for instructor positions in handling classroom situations.

"Impact of action taken or decisions made" refers to the effect that the work will have on the support service provided and on the user of the service or the project undertaken.

Notes to raters

In evaluating positions under the Scope for Initiative and Judgment element, the availability of direction or supervision and the degree of authority delegated by superiors are to be considered. In determining the requirements of a position to adapt, develop and evaluate policies, procedures, methods or standards as defined in the Scope for "Initiative and Judgment" element, raters should assess the availability of, and the requirement to select and use, information from authoritative sources related to the work.

The impact element degree levels are not defined, but examples are provided in the bench-mark descriptions. Raters should/must consider such characteristics as:

The effect of action taken on the quality and cost of the service provided, taking into account the users served and the nature of the activity supported.

The effect of an error in judgment on the use of resources, on the achievement of objectives and on the operations of the users of the service provided.

The extent to which the incumbent is the effective recommending authority, which is usually related to the level of the position in the organization.

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

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

RATING SCALE . RESPONSIBILITY FACTOR

DEGREE OF IMPACT OF ACTIONS TAKEN SCOPE FOR INITIATIVE AND JUDGMENT

	The work is performed according to specific instructions and by applying standard procedures and precedents, and requires some initiative and judgment.	The work is performed according to instructions and by applying standard procedures and precedents, and requires a moderate degree of initiative and judgment.	The work is performed according to general instructions and by adapting procedures and precedents, and requires a considerable degree of initiative and judgment.	The work is performed according to general instructions and by developing new policies and procedures, and requires a significant degree of initiative and judgment.
	A	B	C	D
1	50 17. Electr. Techn.	118 15. Radio Inspector	184	284
2	112	178 13. Field Instal. & Constr. Techn. 14. ELectr. Systems Technician 16. Instr. Methods R&D Techn.	246 9. Techn. Instr., Elect. Systems 12. Elect. Dev. Technologist	309
	172	239 10. Tech. Serv. Station Manager 11. Electronic Syst. Analyst	306 4. Reg. Supt., Elect. Mainz. 5. Section Head 6. Sat. Nav. Sys. Tech 7. Life Cycle Mat. Mgr 8. Tech. Serv. Duty Mgr	369
4	229	297	363 2. Techn. Serv., Area Manager 3. Supervisor, Instal. & Maint. Standards	425 1. Regional Supt., Elect. Maint.

WORKING CONDITIONS FACTOR

This factor is used to measure the extent to which employees are exposed to disagreeable conditions creating or causing physical discomfort in the course of performing assigned duties. Such conditions include the following:

environmental conditions such as dust, dirt, noise, vibration, humidity, extreme temperatures, confined work spaces or unstable footing;

exposure to inclement weather;

requirements for overnight travel;

requirements to engage in climbing, crouching, bending, or lifting or moving heavy objects;

requirements to wear cumbersome protective clothing or equipment;

exposure to in-flight aircraft maneuvers designed to test electronic equipment; and

exposure to shipboard motion while underway in heavy seas or ice conditions.

Notes to raters:

1. The degree tentatively selected must be confirmed by comparing the duties of the position being rated with the duties and specifications of the bench-mark positions that exemplify that degree.

2. Points under this factor are to be awarded only in recognition of conditions encountered in the course of performing assigned duties. Points are not to be awarded in consideration of conditions or circumstances for which compensation is being accorded under a collective agreement or an established program of allowances.

3. Travel for purposes of receiving classroom training is not to be considered under this factor.

4. In references to the frequency of exposure:

   "infrequent" should be interpreted to mean less than once per month or less than 15 days per year;
   "occasional" should be interpreted to mean up to once per week or fifty days per year; and
   "frequent" should be interpreted to mean more than once per week or more than fifty days per year.

5. At least minimum points under this factor will be assigned to all positions.

RATING SCALE . WORKING CONDITIONS FACTOR

WORKING CONDITIONS	BENCH MARK	PAGE NO.
POINTS		
1 The work requires infrequent exposure to several disagreeable conditions, or occasional exposure to one disagreeable condition.	1. RegL. Supt., Elect. Maint. 2. Techn. Serv. Area Mgr. 3. Supv., Instal. & Maint. 4. Reg. Supt., Elect. Maint. 5. Section Head 7. Life Cyc. Mat. Mgr. 8. Tech. Serv. Duty Mgr. 9. Tech. Instr., Electr. Sys. 11. Elect. Syst. Analyst 12. Elect. Dev. Techn. 15. Radio Inspector 16. Inst. Met. Techn. 17. ELectr. Techn.	1-1 2-1 3-1 4-1 5-1 7-1 8-1 9-1 11-1 12-1 15-1 16-1 17-1
10		
2 The work requires occasional exposure to several disagreeable conditions, or frequent exposure to one disagreeable condition.	6. Satellite Nav. Systems Techn. 10. Techn. Serv. Station Mgr. 14. Electr. Systems Techn.	6-1 10-1 14-1
40		
3 The work requires frequent exposure to several disagreeable conditions.	13. Field Instal. and Constr. Techn.	13-1
75		

SUPERVISORY RESPONSIBILITY

This factor measures the continuing responsibility of the position for the work and guidance of other employees as indicated by the nature of the supervisory responsibility.

DEFINITIONS

• Nature of supervisory responsibility " refers to the extent to which supervisory positions have such continuing responsibilities as controlling the quantity and quality of work, assigning work, allocating staff, evaluating staff performance, and training and disciplining staff.

• Staff " refers to the individuals for whom the position exercises line supervisory responsibility directly or through subordinate supervisors.

NOTES TO RATERS

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

2. At least minimum points under this factor will be assigned to all positions.

3. The following are not to be considered as supervision; however, points may be awarded as appropriate under the Skill and Knowledge and/or Responsibility factors:

   monitoring the progress or activities of consultants; and
   administering contracts and/or persons under contract.

4. In evaluating positions, all the characteristics of each degree of Supervisory responsibility must be considered; the criterion for the assignment of degrees to positions is that a position must include most of the, characteristics of the degree assigned.

5. Major organizational area in degree D will be defined as normally supervising 30 or more employees who are dispersed geographically.

RATING SCALE . SUPERVISORY RESPONSIBILITY FACTOR

NATURE OF SUPERVISORY RESPONSIBILITY	POINTS	BENCH MARK	PAGE NO.
A. Assists in the training and orientation of new employees.		6. Sat. Nav. Sys. Tech.	6-1
		7. Life Cycle Mat. Mgr.	7-1
		8. Tech. Serv. Duty Mgr.	8-1
		9. Tech. Instr., Elect. Sys.	9-1
		12. Elect. Dev. Techn.	12-1
		13. Field Instal. & Constr. Techn.	13-1
		14. Electr. Systems Techn.	14-1
		15. Radio Insp.	15-1
		16. Inst. Meth. Techn.	16-1
		17. Electr. Techn.	17-1
	10		
B. Organizes and controls the work of staff on a continuing basis. Directs employee(s) in work methods, procedures and techniques and in the solution of problems. Ensures compliance with work standards and procedures. Formally evaluates work performance. Identifies training requirements.		3. Supervisor, Instal. & Maint. Standards	3-1
		5. Section Head	5-1
		10. Techn. Serv. Station Mgr.	10-1
		11. Electronic Systems Analyst	11-1
	25		
C. Through subordinate supervisors plans, organizes and controls the work on a continuing basis. Establishes objectives and priorities. Determines short-and long-term human resource requirements. Identifies development requirements and develops training plans.		4. Reg. Supt., Elect. Maint.	4-1
	45		
D. Manages, coordinates and evaluates the use of human resources through subordinate supervisors within a major organizational area(*); sets goals and objectives; reviews and approves work plans; determines the resource requirements; reviews and approves training programs; authorizes changes to performance standards; and recommends changes in the organization.		1. Regional Supt., Elect. Maint.	1-1
		2. Techn. Serv. Area Manager	2-1
	75		

* Refer to point 5 of Notes to Raters

BENCHMARK POSITION NDEX

Degrees and Points ssigned

B.M.	POSITION TITLE	SKILL & KNOWLEDGE	RESPONSIBILITY	WORKING CONDITIONS	SUPERVISION	TOTAL	LEVEL
1	Reg.Supt., Electronic Maintenance (Coast Guard)	C4/	D4/	1/	D/	878	9
2	Technical Services Area Manager	C3/	C4/	1/	D/	752	8
3	Supervisor, Installation and Maintenance Standards	D3/	C4/	1/	8/	760	8
4	Reg.Supt., Electronic Maintenance (Environment)	C3/	C3/	1/	C/	665	7
5	Section Head, Edmonton	C3/	C3/	1/	B/	645	7
6	Satellite Navigation System Technologist	D2/	C3/	2/	A/	651	7
7	Life Cycle Materiel Manager	C2/	C3/	1/	A/	564	6
8	Technical Services Duty Manager	C2/	C3/	1/	A/	564	6
9	Technical Instructor, Electronic Systems	C2/	C2/	1/	A/	504	6
10	Technical Services Manager	82/	B3/	2/	B/	483	5
11	Electronic Systems Analyst	C1/	83/	1/	B/	443	5
12	Electronics Development Technologist	C1/	C2/	1/	A/	435	5
13	Field Installation and Construction Technician	B2/	82/	3/	A/	442	5
14	Electronic Systems Technician	81/	82/	2/	A/	339	4
15	Radio Inspector	B2/	81/	1/	A/	317	4
16	Instrumental Methods R&D Technologist	81/	82/	1/	A/	309	4
17	Electronics Technician	81			A,'		

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 1

Level: EL-09

Descriptive Title: Regional Superintendent, Electronic Maintenance (Coast Guard)

Point-Rating: 878

Reports to: Regional Manager, Telecommunications and Electronics

Duties.		% of Time
1.	Manages the maintenance of electronic facilities related to international and domestic marine transportation provided by the Region. Defines and establishes the Division's policies, objectives and priorities to ensure that they contribute to those of the Department, Region and Branch. Manages the operation of the Long Range Aid to Navigation system which includes Loran-C and non-directional beacons for marine and air navigation.	40
2.	Directs and controls the human resources activities of the Electronics Maintenance Division; and coordinates and controls the Division's maintenance activities with user agencies within the Department, with other government departments and agencies, and with the general public.	15
3.	Administers the installation and use of transmission lines and other leased telecommunications equipment and services used by the Region.	15
4.	Directs changes in maintenance service and implements changes in procedures to meet user needs.	10
5.	Develops divisional short and long range plans and prepares annual estimates and the divisional input for inclusion in the Coast Guard multi-year operational plan; and performs other related duties.	20

SPECIFICATIONS

A. Skill and Knowledge — C4 - 368 points

1. Specialized Technical Knowledge and Skills — Degree C

The work requires a broad general knowledge of electronics systems including radar, telecommunications, security systems, computer systems, shipboard electronics, and navigational aids. Such knowledge is required in order to direct the maintenance of diverse electronic facilities in support of marine transportation.

2. Program Knowledge — Degree 4

The work requires extensive knowledge of administrative and management practices in order to manage a diverse organization. Knowledge is required in the areas of:

personnel administration (including recruitment, training, performance appraisal and collective agreements);

regulations and policies associated with leasing and contracts in order to direct the leasing of telecommunications services and equipment;

financial administration including the Financial Administration Act in order to manage a budget of $5.5 million and direct the preparation of estimates and forecasts;

accommodation management in order to assess the needs of the Division for land, building and accommodations; and

policies, standards and directives on safety and security to ensure that working conditions provide for the safety and security of employees.

The work also requires a good knowledge of the operations and objectives of Coast Guard programs in the Region relying upon electronic systems and equipment for navigation, communications and vessel traffic control.

B. Responsibility Degree D4 - 425 points

The work requires initiative and judgment in order to develop policies, objective! and priorities for the regional maintenance program. The incumbent develops procedures and guidelines with respect to the maintenance services provided and recommends changes to departmental maintenance policies, procedures and guidelines Judgment is also required when negotiating standards and cost recovery for electronic maintenance with officials of user agencies such as the U.S. Coast Guard.

The work has an impact on the adequacy of diverse electronic facilities in support of marine transportation throughout the Region. The work thus has an impact on domestic and international marine transportation and on marine safety and communications services as well as maintenance costs. The position is responsible for 10 electronic workshops, 26 vessels and 50 land sites.

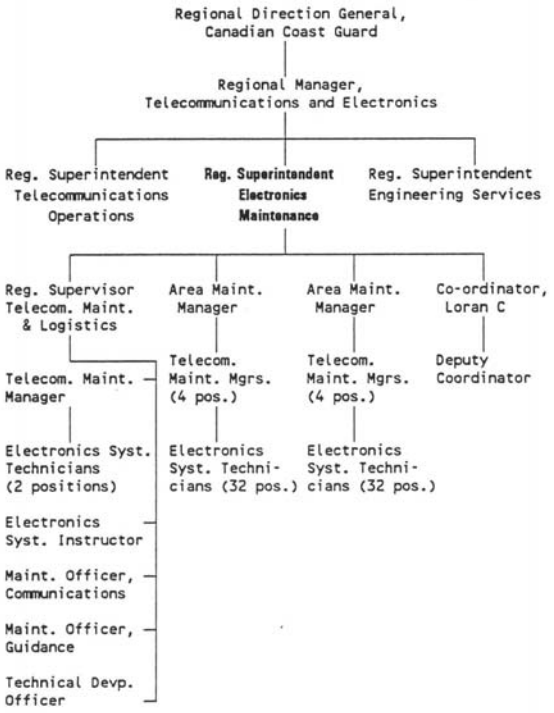
C. Working Conditions Degree 1 - 010 points

Most of the work is performed in an office environment with infrequent exposure to disagreeable conditions.

D. Supervision Degree D - 075 point

The work involves directing the activities of 85 employees through subordinate supervisors, dispersed geographically.

BENCH-MARK 1


Regional Direction General, Canadian Coast Guard
Regional Manager, Telecommunications and Electronics
Reg. Superintendent Telecommunications Operations
Reg. Superintendent Electronics Maintenance
Reg. Superintendent Engineering Services
Reg. Supervisor Telecom. Maint. & Logistics
Area Maint. Manager
Area Maint. Manager
Co-ordinator, Loran C
Telecom. Maint. Manager
Telecom. Maint. Mgrs. (4 pos.)
Telecom. Maint. Mgrs. (4 pos.)
Deputy Coordinator
Electronics Syst. Technicians (2 positions)
Electronics Syst. Technicians (32 pos.)
Electronics Syst. Technicians (32 pos.)
Electronics Syst. Instructor
Maint. Officer, Communications
Maint. Officer, Guidance
Technical Devp. Officer

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 2 Level: EL-8

Descriptive Title: Technical Services Area Manager Point-Rating: 752

Reports to: Regional Superintendent, Electronic Maintenance

Duties:	% of Time
1. Plans, organizes and coordinates the Electronic Maintenance Program for the designated geographic area by: - directing through subordinate supervisors the EL maintenance activities required to meet the aviation commitments assigned to the Technical Services Area Manager; - interpreting department policies and directives and establishing appropriate area policies, goals and objectives and defining responsibilities and authorities of subordinates; - conducting a Field Inspection Quality Control Program at all area sites to ensure adherence to national and regional standards; - preparing submissions and written and oral reports to Regional H.Q., as required, on all matters relating to the provision of an effective maintenance program; - coordinating maintenance activities on-site, between sites, with other centres, other government branches and outside agencies; - assessing the operational, financial and human resources impact of planned new facilities and developing plans for present and future years to ensure that resources are available, including input to such projects; and - administering contracts and agreements on behalf of the Branch for maintenance and overhaul of electronic facilities and site building and grounds maintenance within the Area, ensuring a satisfactory standard of work.	30
2. Manages the maintenance of the Area Control Center (ACC) and other aviation buildings within the area by: supervising, through a subordinate manager, the facility maintenance staff, and ensuring immediate action in emergency situations to minimize interruption to ACC, Tower and FSS operations; conducting meetings with contractors to formulate solutions to problems and inspecting contract work to ensure compliance with specifications; and planning, organizing and directing activities which relate to the maintenance of the Area Control Center and other aviation facilities.	30
3. Manages the Maintenance Center's personnel and financial resources by: identifying training needs of subordinate personnel and programming these into the regional training plan; fostering good employer/employee relations, resolving contentious issues and serving as a step in the grievance procedure; and implementing and maintaining the Departmental Occupational Health and Safety Program as well as the Transport Canada security policy; preparing annual estimates and long range forecasts (MYOP) for resource requirements based on program requirements; and serving as a responsibility center manager and controlling, through area costs centres, the allocated resources.	25

4. Develops and maintains an effective user liaison program by: 10

- chairing/participating in meetings to resolve customer complaints and coordinating user requirements with the maintenance program and obtaining cooperation of other branches or outside agencies in the provision of services in support of Branch activities; and

- liaising with managers or representatives of user agencies (ATC, FSS, DND, FAA, airlines and other government agencies) on a scheduled basis and ensuring day-to day liaison at subordinate levels to effect customer satisfaction and foster good communications.

5. Performs other duties such as participating in special projects at the regional H.Q. Levels including Performance Evaluation Staffing Times (PEST) programs and staffing yardstick reviews. 5

SPECIFICATIONS

A. Skill and Knowledge Degree C3 - 304 points

1. Specialized Technical Knowledge and Skills Degree C

The work requires a broad general knowledge of electronics systems in use including diverse systems associated with navigational aids, telecommunications, radar and security. Also required is a broad general knowledge of all automated systems used in the Area Control Center including the Radar Data Processing System (RDPS) and the Integrated Communications Control System (ICCS).

2. Program Knowledge Degree 3

Knowledge of administrative and management policies and practices is required to manage a diverse organization and budget. Knowledge is required in the areas of:

personnel administration (including training, staff relations and collective agreements);
occupational health and safety;
financial administration including procedures associated with estimates and forecasts (five Cost Centers); and
contract administration in order to administer contracts and agreements on behalf of the Branch.

The work also requires a detailed knowledge of the operations of assigned airports and air traffic control facilities and of inter-relationships with user agencies such as airlines.

B. Responsibility Degree C4 - 363 points

The work requires initiative and judgment in order to establish policies, goals and objectives for the area maintenance program. Judgment is also required when assessing the operational, financial and human resources impact of planned new facilities and developing plans for present and future years.

The work has an impact on the adequacy of the electronic maintenance program for the Edmonton area. The area electronic maintenance program includes responsibility for one area control center, 2 flight service stations, 3 aircraft control towers, 2 staffed sites and capital assets valued at $20 million. Errors would increase hazardous air traffic conditions throughout the area and would result in danger to the flying public.

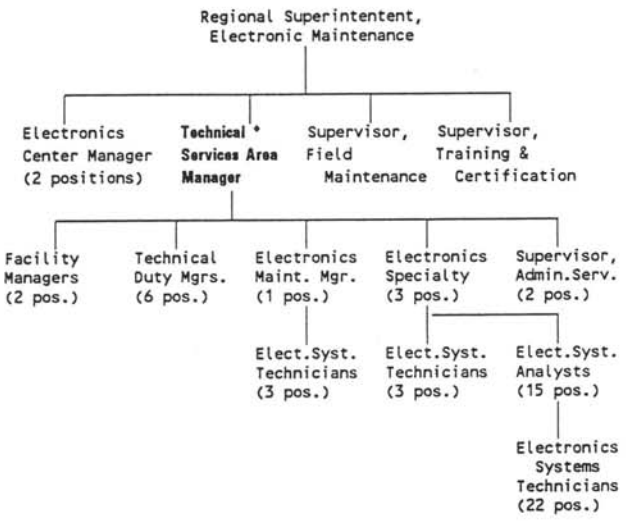
C. Working Conditions Degree 1 - 010 points

The work involves infrequent exposure to disagreeable conditions during site visits.

D. **Supervision** Degree D - 075 points

The work involves supervision of 54 employees through subordinate supervisors dispersed across the area.

BENCH-MARK 2


Regional Superintentent, Electronic Maintenance
Electronics Center Manager (2 positions)
Technical * Services Area Manager
Supervisor, Field Maintenance
Supervisor, Training & Certification
Facility Managers (2 pos.)
Technical Duty Mgrs. (6 pos.)
Electronics Maint. Mgr. (1 pos.)
Electronics Specialty (3 pos.)
Supervisor, Admin.Serv. (2 pos.)
Elect.Syst. Technicians (3 pos.)
Elect.Syst. Technicians (3 pos.)
Elect.Syst. Analysts (15 pos.)
Electronics Systems Technicians (22 pos.)

BENCH-MARK POSITION DESCRIPTION

Bench-Mark Number: 3 Level: EL-8

Descriptive Title: Supervisor, Installation and Maintenance Standards Point-Rating: 760

Reports to: Superintendent, Approach and Landing Systems

Duties:	**% of Time**
1. Develops national policies to ensure that landing systems are sited, installed and maintained in the most uniform, economical and technically proficient manner and develops policies for equipment installation and the repair and overhaul of printed circuit boards, electro-mechanical units, modules, etc. This includes determining whether these activities can be undertaken more efficiently using in-house resources or by private industry for each particular system. Develops sparing policies and procedures for new and existing systems. Develops policies, programs and procedures for the installation, repair and overhaul of equipment by private contract.	40
2. Manages a program for the development, writing and amendment of all sitting, installation and maintenance standards manuals for Landing systems. Ensures that installation and maintenance standards are such that system operating tolerances meet ICAO (International Civil Aviation Organization) recommendations. Ensures that the contents of manuals are compatible with the established procedures and operational requirements of users such as ATS (Air Traffic Services).	20
3. Participates in landing system functional reviews as the departmental technical expert in landing systems. In coordination with the Quality Assurance Division, provides advice on the technical content of all landing aid inspection manuals. Initiates, manages and frequently participates in various studies related to the sitting, installation and maintenance of prototype and existing systems. Provides technical advice, support action and interpretation of policies and standards concerning sitting, installation and maintenance of landing systems.	20
4. Functions as the Project officer for the procurement of certain landing support systems such as specialized test equipment and structural assemblies and assigns staff to and serves on procurement teams for landing systems to ensure that installation and maintenance requirements are met.	10
5. Performs other responsibilities such as: developing, implementing and occasionally participating in a national PEST (Program for Evaluating of Staffing Times) program to verify existing workload yardstick figures. The PEST team includes two regional representatives with a headquarters representative who serves as chairman.	10

SPECIFICATIONS

A. Skill and Knowledge Degree D3 - 362 points

1. Specialized Technical Knowledge and Skills Degree D

The work requires knowledge to serve as the Department's recognized subject matter technical expert in the area of installation and maintenance standards respecting landing systems. Such knowledge is required in the development of national installation and maintenance policies and standards relative to landing systems and in the coordination of landing system functional reviews. Technical knowledge is required in such areas as: current electronic technology respecting landing systems; landing system design techniques and problems; installation, repair and overhaul methods for landing systems; and all other electronic systems *which* are interfaced *with* landing systems.

2. Program Knowledge Degree 3

The work requires knowledge of administrative and management practices in order to manage project teams and direct subordinate staff. Knowledge of contracting

is required in order to: evaluate tenders; recommend contractors; initiate contracts, and develop policies for services by private contract. Knowledge of procurement is also required in order to procure landing support systems. The work also requires a good knowledge of: aviation objectives; organization and policies; objectives and safety standards of the International Civil Aviation organization related to landing systems; as well as the operation of all airports and air traffic control centers operated by Transport Canada.

B. Responsibility Degree C4 - 363 points

Judgment and initiative are required in developing national policies to ensure that landing systems are sited, installed and maintained in the most uniform, economical and technically proficient manner.

The work has an impact on the installation, maintenance and sitting of landing systems throughout Canada. There is also an impact on the performance and availability of landing systems, hence on the safety of the flying public.

C. **Working Conditions** Degree 1 - 010 points

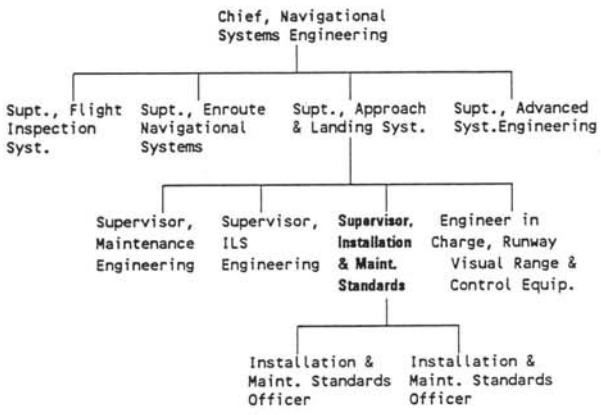
Most of the work is performed in an office environment with occasional exposure to disagreeable conditions during field trips.

Degree B - 025 points

D. Supervision

The work includes supervising two senior systems specialists

BENCH-MARK 3


Chief, Navigational Systems Engineering
Supt., Flight Inspection Syst.
Supt., Enroute Navigational Systems
Supt., Approach & Landing Syst.
Supt., Advanced Syst.Engineering
Supervisor, Maintenance Engineering
Supervisor, ILS Engineering
Supervisor, Installation & Maint. Standards
Engineer in Charge, Runway Visual Range & Control Equip.
Installation & Maint. Standards Officer
Installation & Maint. Standards Officer

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 4 Level: EL-07

Descriptive Title: Regional Superintendent, Electronic Maintenance (Environment) Point-Rating: 665

Reports to: Regional Chief, Data Acquisition

Duties: % of Time

1. Manages the regional programs for electronic equipment and systems to ensure that regional electronic systems are operated and maintained at optimum effectiveness in accordance with national standards and regulations by: 25

participating in the planning for future automated data acquisition systems;

approving site selection and reviewing site plans prior to forwarding to Atmospheric Environment Services (A.E.S.) Headquarters for approval of system installations;

- drafting or adapting specifications for service contracts to provide for the installation of specified electronic equipment;

acting as the A.E.S. regional electronics technical authority in coordinating the installation of on-line equipment and systems, as well as analyzing and finding solutions to installation problems as they arise; and

signing on behalf of A.E.S. the acceptance of completed contract work per contract specifications and required standards.

2. Directs the maintenance (quality control) program with respect to electronic equipment systems operation and the data produced by: 25

establishing maintenance procedures, standards and schedules for new equipment;

adapting specified maintenance and overhaul standards for equipment systems as required by A.E.S., H.Q.;

identifying improvements in maintenance and overhaul procedures and making recommendations to A.E.S. Headquarters Data Acquisition Systems Branch;

developing modifications to improve equipment operation and reduce maintenance time; and

- identifying unusual maintenance problems and seeking resolution with those concerned (Headquarters experts, suppliers, etc.)

3. Coordinates the regional electronic program and provides technical consultation/advice to personnel of the A.E.S., other components of D.O.E., and outside agencies on electronic equipment/systems associated with recording/transmitting geophysical phenomena or data by: 25

discussing and advising on electronic equipment/ instrument systems involved in new projects with the superintendent or other regional A.E.S. personnel concerned;

providing or arranging for instruction to staff and private industry in the theory, operation and maintenance of A.E.S. electronic equipment;

reviewing and evaluating the effectiveness of regional A.E.S. on-line equipment/systems to ensure quality of operation and data collected for use in weather forecasting, meteorological research, etc.;

participating in the planning of proposed meteorological data acquisition systems and coordinating the integration of advancing technology in regional operational and research networks; and

managing and operating a maintenance and repair laboratory for repairing, testing

and modifying defective components or circuits (printing circuit boards) from field sites.

4. Manages and controls operations and maintenance expenditures of the electronics unit; coordinates the selection, promotion, development and evaluation of technicians; and supervises a staff of 11 technicians, by: 25

developing a budget for new and replacement electronic parts and equipment (including test equipment) for the operation of automatic weather stations, weather radar units, upper air stations, weather radio units and an assortment of electronic equipment and computer peripherals, including the operation of electronic laboratories at two locations; and

investigates complaints and grievances, represents management at level one grievance hearings, and responds to grievances at first level.

SPECIFICATIONS

A. Skill and Knowledge Degree C3 - 304 points

1. Specialized Technical Knowledge and Skills Degree C

The work requires a broad general knowledge of electronic systems such as radar, telecommunications, computers, cloud processors and wind detectors. Such knowledge is required to enable the incumbent to serve as the regional authority responsible for the implementation of departmental plans for the installation of electronic equipment, systems and instruments.

2. Program Knowledge Degree 3

The work requires knowledge of administrative and management policies and procedures in order to manage the regional installation and maintenance programs. Knowledge is required of: contracting procedures and policies in order to draft and adapt contract specifications; and financial policies and procedures to control maintenance expenditures and develop budgets and personnel policies related to such areas as grievances and staffing. The work also requires a good knowledge of the operations and objectives of regional programs related to weather forecasting, analysis and meteorological research, covering a large area with installations in a number of remote locations.

B. Responsibility Degree C3 - 306 points

The work requires initiative and judgment in establishing and adapting maintenance procedures, standards and schedules for equipment. Judgment is also required in participating in the planning for or design of future automated data acquisition systems.

The work has an impact on the installation and maintenance program in a large geographic area encompassing Manitoba, Saskatchewan and the Arctic. The position serves as the Department's regional authority relative to electronic installation and maintenance. However, advice can be obtained from engineers at headquarters on very difficult problems. The work also has an impact on lower maintenance costs and improved service to users in the region.

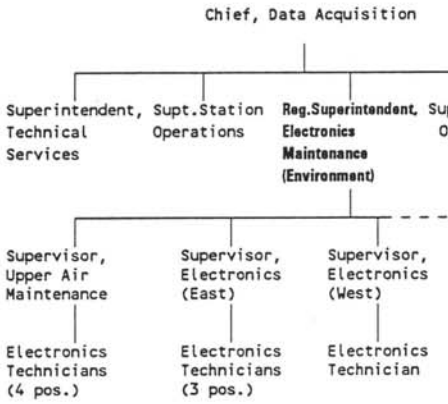
C. Working Conditions Degree 1 - 010 points

There is infrequent exposure to disagreeable conditions while traveling to sites for inspection.

D. Supervision Degree C - 045 points

The work involves supervision of 10 technicians through 3 subordinate supervisors.

BENCH-MARK 4


Chief, Data Acquisition
Superintendent, Technical Services
Supt.Station Operations
Reg.Superintendent, Electronics Maintenance (Environment)
Supervisor, Upper Air Maintenance
Supervisor, Electronics (East)
Supervisor, Electronics (West)
Electronics Technicians (4 pos.)
Electronics Technicians (3 pos.)
Electronics Technician

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 5 Level: EL-07

Descriptive Title: Section Head, Edmonton Point-Rating: 645

Reports to: District Director

Duties:	% of Time
1. Works with clients to plan a public relations and information program and takes part in the program in order to keep license holders, operators, delegated examiners, suppliers, installers, maintenance personnel and the general public informed of spectrum management issues and other departmental programs as required by: establishing and maintaining good working relations with technical managers and suppliers of telecommunications equipment, installers, service agencies, hydro companies and government organizations located in the district; and providing advice to suppliers and installers of radio communication systems, including industrial, scientific and medical equipment, in order to keep interference to a minimum.	10
2. Plans, directs and controls the authorization, delivery and renewal of licenses for all radio facilities both fixed and non-fixed operating on frequencies below 960 MHz by: evaluating technical notes and applications for complex radio systems, and determining acceptability of technical parameters on the basis of spectrum users, departmental policies, legislation, coordination agreements and regulations; conducting studies of electromagnetic compatibility and radio propagation and identifying system reliability and any interference other users may experience; recommending rejection of applications that do not comply with departmental requirements or good spectrum management practices; and directing and controlling the program of examinations leading to amateur and professional radio operator certificates.	30
3. Manages a program to control radio licensee compliance in the district by: designing and implementing random samplings of radio stations using signal interception and/or on-site inspection techniques to determine the state of the radio spectrum within the district; analyzing sampling results to identify and determine underlying causes of infractions and trends; and designing action programs to correct identified unacceptable spectrum conditions.	5
4. Leads special investigations (initiated by MPs, provincial legislators, and senior dept. officials) for potential prosecution cases and contentious inspections; prepares reports and recommendations based on findings; and negotiates with parties to resolve associated conflicts particularly in areas where the Act and Regulations have little or no application.	20
5. Coordinates and supervises the work of a senior radio inspector, five to eight radio inspectors and one to three clerical employees. Plans, recommends and implements a training program for subordinates to ensure that program objectives are achieved.	15
6. Analyses, comments on and writes proposals concerning revision of procedures, directives and guidelines to take into account technical changes, available equipment or other external factors, and thus improve the effectiveness, quality and response time of spectrum management services.	10

7. Performs other responsibilities such as: 10 ,

establishing and implementing an active safety and security program to prevent accidents and ensure employee safety and the security of vehicles and electronic equipment assigned to the section.

SPECIFICATIONS

A. Skill and Knowledge Degree C3 - 304 points

1. Specialized Technical Knowledge and Skills Degree C

The work requires a knowledge of a variety of telecommunications systems and equipment in order to assess technical parameters of systems. Also required is knowledge of electronic circuits, microcomputer systems and automated measuring techniques related to telecommunications.

2. Program Knowledge Degree 3

The work requires knowledge of legislation, regulations, policies, standards, procedures and guidelines concerning radio system authorization, radio operators qualifications, resolution of compatibility and interference problems and radio requirements pertaining to marine safety. Also required is knowledge of administrative and management policies and practices in the areas of personnel and finance in order to manage a unit.

The work also requires knowledge of public relations and information programs design specifically targeted for client groups such as radio user groups/Licensees and the general public.

B. Responsibility Degree C3 - 306 points

The work is conducted within the framework of general guidelines and standards set out in the Radio Communications Act, the Canada Shipping Act, regulations and specifications. Judgment is required in: authorizing radio stations to go on the air and proposing changes to regulations, policies and work methods with respect to the processing of licenses.

The work has an impact on applicants-for radio licenses and candidates for amateur or professional radio certificates. Spectrum control activities have an impact on a variety of spectrum users. The work also affects the resolution of complaints addressed to the Minister, members of Parliament and provincial legislators. In addition, the work has an impact on safety services (e.g. police and fire departments) due to the issuance of frequencies. Errors could lead to unnecessary expense for radio spectrum users, hence increases in operating costs and declines in income for various firms. Errors could also lead to poor use of the spectrum, a limited natural resource.

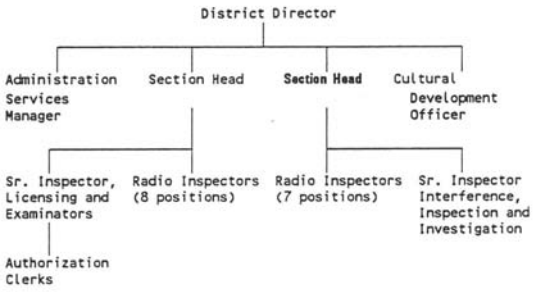
C. Working Conditions Decree 1 - 010 points

There is occasional exposure to disagreeable conditions such as cold weather when conducting investigations.

D. Supervision Degree B - 025 points

The work involves supervision of approximately 10 employees.

BENCH-MARK 5


District Director
Administration Services Manager
Section Head
Section Head
Cultural Development Officer
Sr. Inspector, Licensing and Examinators
Radio Inspectors (8 positions)
Radio Inspectors (7 positions)
Sr. Inspector Interference, Inspection and Investigation
Authorization Clerks

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 6 Level: EL-7

Descriptive Title: Satellite Navigation System Technologist Point-Rating: 651

Reports to: Project Manager, NAVSTAR Global Positioning Systems

Duties:	% of Time
1. Plans, controls and coordinates the development, acquisition, installation, integration, maintenance and logistics support of the airborne NAVSTAR Global Positioning System (GPS) for several hundred military aircraft to provide the best and most technologically advanced system within the budgetary, operational and other constraints peculiar to the Canadian Forces' GPS Major Crown Project by:	30

establishing objectives against operational requirements; identifying and evaluating options; developing cost estimates and plans to provide the basis for departmental decision making and project funding; and initiating and seeking approval of decision documents;

defining the level of support required from other departmental organizations, negotiating tasking agreements and identifying and committing to provide the resources required;

developing a schedule and implementation plan that clearly defines the objectives to be achieved and estimating, justifying and arranging for financial and staff requirements;

- producing contract documents, statements of work and specifications for tendering purposes, appraising tenders in terms of compliance; and recommending acceptance/rejection of tenders and the committing of project funds;
- reviewing progress and directing corrective action through consultation with supporting departmental organizations, Supply and Services Canada and contractors;
- manages and controls project resources to ensure objectives are met within budget;
- signing on behalf of the department the acceptance of completed work per contract specifications; and
- representing the Department as the principal Canadian representative to the NATO NAVSTAR technical support group, and originating and presenting the Department's position.

2. Develops, reviews and implements technical solutions to meet the requirements of the GPS project by:	55

translating operational requirements into system specifications to ensure that the developed system will be compatible with the requirement;

directing the evaluation of existing equipments to determine whether they could be adapted to meet operational requirements;

overseeing industry conducted design work, the testing and evaluation of developmental and preproduction prototypes, and assessing the technical risks involved before proceeding to production;

developing detailed specifications for testing, quality control, and acceptance of equipment to ensure that the final product meets the relevant design specifications and properly performs its required function;

conducting systems engineering analyses to ensure that all system interfaces have been considered and are correctly specified and that electrical power and electromagnetic interference control requirements have been defined; and

- providing technical expertise as the Department's GPS and integrated navigation system expert to departmental officials and contractors.

3. Develops and implements maintenance practices for the NAVSTAR Global Positioning System to ensure cost effective maintenance consistent with current technology and Canadian Forces requirements and resources:

by ensuring conformance with current Canadian Forces avionics maintenance policies and procedures;

by recognizing and adapting advanced maintenance techniques where greater efficiencies can be achieved; and

by determining personnel, sparing, documentation, test equipment, training and contractor repair and overhaul requirements.

SPECIFICATIONS

A. Skill and Knowledge — Degree D2 - 295 points

1. Specialized Technical Knowledge and Skills — Degree D

The work requires specialized technical knowledge to serve as departmental expert, relative to the NAVSTAR Global Positioning System and integrated navigation systems. Knowledge is required of: state-of-the-art electronic theories, practices and techniques applicable to satellite-based navigation systems and associated airborne user terminals; the characteristics, performance and capabilities of military and commercially available NAVSTAR Global Positioning Systems; and commercial and military specifications and their application in the design. development. testing and acceptance of avionics systems.

2. Program Knowledge — Degree 2

Knowledge is required of the concepts and practices of project management including: planning, justifying, defining and negotiating the level of support required for projects; establishing goals and objectives; budgeting and controlling project resources; and assessing the progress of projects. Knowledge is also required of contract management and government policies related to major Crown projects. The work also requires a thorough knowledge of military requirements and objectives of the NAVSTAR system including requirements for compatibility with corresponding NATO and NORAD systems.

8. Responsibility — Degree C3 - 306 points

The work is performed in accordance with general project management objectives established for the major Crown NAVSTAR GPS project. Judgement is required in: planning and implementing design, development and installation projects; establishing objectives, cost estimates, schedules and implementation plans for projects; and developing system specifications.

Decisions and recommendations affect the equipment selection, development, integration and performance in several hundred operational military aircraft and substantially affect program schedules and the encumbering of extensive departmental resources to this major Crown project.

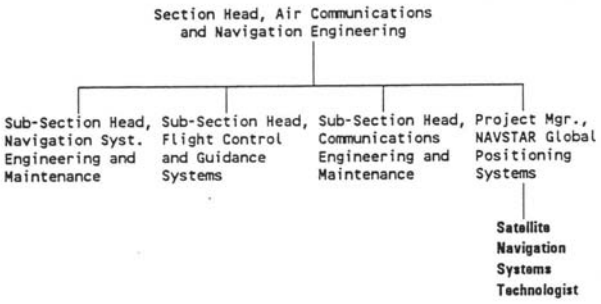
C. Working Conditions — Degree 2 - 040 points

The work involves frequent overnight travel including visits to test sites, military bases, contractors' plants and agencies in allied nations.

D. Supervision — Degree A – 010 Points

There is no continuing or substantive responsibility for the work of other employees.

BENCH-MARK 8


Section Head, Air Communications and Navigation Engineering
Sub-Section Head, Navigation Syst. Engineering and Maintenance
Sub-Section Head, Flight Control and Guidance Systems
Sub-Section Head, Communications Engineering and Maintenance
Project Mgr., NAVSTAR Global Positioning Systems
Satellite Navigation Systems Technologist

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 7 Level:EL-6

Descriptive Title: Life Cycle Materiel Manager Point-Rating: 564

Reports to: Supervisor, Radar

Duties:	% of Time
1. Originating and developing maintenance methods, procedures and techniques to ensure that one or more major long range radar(s) forming the Defense Surveillance Network is maintained electronically, functionally and structurally to its designed specifications.	25
2. Conducting technical studies and investigations, developing solutions to maintenance problems and recommending/monitoring repair and overhaul activities to ensure maximum equipment availability, capability and maintainability by: identifying equipment failures and conditions that require further technical investigation, modification development, design or configuration change or materiel support revision; coordinating the activities of mobile repair parties (MRP), comprising civilian contractor and/or military personnel, tasked to correct equipment malfunctions or implement modifications beyond the capability of field maintenance staff; evaluating field reports of pre-installation and premature failure of contractor repaired items to identify areas of responsibility, recommend corrective action and initiate warranty investigation through the applicable quality assurance agency, if required; monitoring contractor repair, investigation and project activity and reviewing repair and overhaul data products to ensure the effectiveness and economy of the facility output and to ensure that the contractor is provided with the materiel, tools and equipment essential to task completion, within the terms of the contract; and conducting staff visits to contractors' facilities to ensure that the methods and procedures employed are in accordance with specified standards and directives and to provide technical assistance, as required.	30
3. Developing, evaluating and recommending equipment modifications, product improvement projects and configuration change proposals to correct system deficiencies, enhance maintainability and reliability, extend service life expectancy, reduce costs and eliminate safety hazards by: writing/rewriting, designing/redesigning or reviewing modifications and instructions to meet specific equipment and materiel requirements economically and in accordance with standard practices and procedures; preparing, correcting and revising modification instructions for production, recommending the publication and distribution of instructions and recommending acquisition of materiel requirements through procurement directorates; and conducting or monitoring modification implementation, ensuring completion is property documented and recorded and monitoring modification effectiveness through information systems and direct site feedback.	20
4. Providing technical and financial advice and assistance to bases or stations, commands and regions, other directorates, other departments, contractors, manufacturers and foreign agencies to resolve engineering. maintenance and logistic support problems.	20
5. Performing other duties such as: participating in annual budget forecasting.	5

SPECIFICATIONS

A. Skill and Knowledge — Degree C2 - 238 points

1. Specialized Technical Knowledge and Skills — Degree C

The work requires specialized technical knowledge to serve as the departmental equipment specialist respecting the major long range radars forming the Canadian Aerospace Defense Surveillance Network. Knowledge is required of: the theory, practices, techniques, application and inter-relationships covering several generations of electronic technologies; the electrical, physical and environment characteristics of the wide range of electronic parts and components; the testing, manufacturing, repair and overhaul techniques applicable to electronic parts and components; and the mechanical theory, practices and maintenance techniques applicable to equipment.

2. Program Knowledge — Degree 2

The work requires knowledge of departmental administrative, financial logistics and contracting practices in order to plan and co-ordinate the implementation of adequate, timely. and cost effective support for the assigned equipment(s). A good knowledge of the inter-relationship of the Canadian Aerospace Defense Surveillance Network with allied forces' systems is also required.

B. Responsibility — Degree C3 - 306 points

The work requires the exercise of initiative and judgment in: originating and developing maintenance methods, procedures, techniques and schedules; conducting technical investigations and formulating solutions to maintenance problems; and providing technical advice to bases or stations, commands, contractors, manufacturers and foreign agencies.

Decisions and recommendations have an impact on the operation, maintainability, cost effectiveness and safety aspects of major long range radar(s) forming the Aerospace Defense Surveillance Network. Errors in the work could have a serious affect on North American Aerospace Defense capabilities.

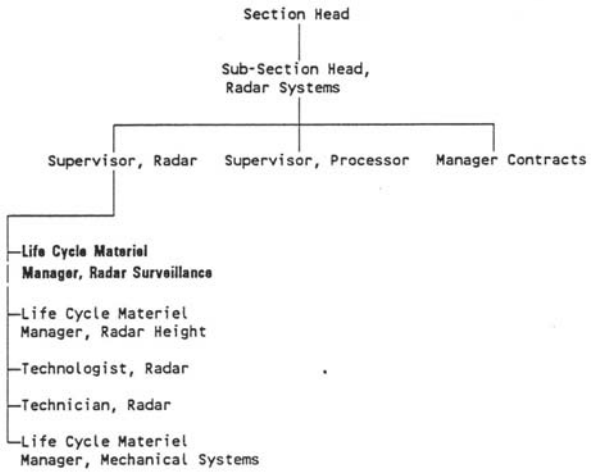
C. Working Conditions — Degree 1 - 010 points

The work is generally performed in an office environment with occasional exposure to disagreeable conditions during field trips.

D. Supervision — Degree A - 010 points

There is no continuing or substantive supervisory responsibility.

BENCH-MARK 7


Section Head
Sub-Section Head, Radar Systems
Supervisor, Radar
Supervisor, Processor
Manager Contracts
Life Cycle Materiel Manager, Radar Surveillance
Life Cycle Materiel Manager, Radar Height
Technologist, Radar
Technician, Radar
Life Cycle Materiel Manager, Mechanical Systems

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 8 Level: EL-06

Descriptive Title: Technical Services Duty Manager Point-Rating: 564

Reports to: Technical Services Area Manager

Duties:		% of Time
1.	Is responsible for the continuity of the Air Navigation Systems' (ANS) Technical Services (TS) within the Area Control Center, and ensures that all electronic systems in the Flight Information Region (FIR) providing these services meet immediate user requirements by: responding to any degradation in service to Air Traffic Services (ATS) or civil aviation detected by the Technical Services Duty Manager (TDM) or reported by the user or TS personnel; serving as interface between Technical Services and ATS and between external agencies and ATS (e.g. DND, airports) for technical matters; recognizing any system degradation and ensuring by direction that immediate restorable procedures are carried out as determined by him or her through consultations with ATS and TS personnel at local and remote locations; providing the initial TS response to ATS in respect to degradation or loss of technical services provided by electronic system/equipment throughout the FIR; providing the initial fault analysis and diagnosis; and identifying in which major section of a system the cause of a problem is likely to exist so as to determine which maintenance group within the FIR should respond.	35
2.	As the overall FIR Technical Coordinator during a shift, directs and coordinates the corrective maintenance response, based on the regional response time agreements and ATS operational priorities, by: advising maintenance staff of failures, priority of action and, when necessary, coordinating the activities of the various maintenance groups including various maintenance authorities in DND, FAA and telecommunication companies; coordinating, when and where necessary, the corrective maintenance response provided by the appropriate maintenance personnel within the FIR with respect to systems associated with ACC; ascertaining the optimum method whereby service can be restored in the event of major disruptions to service such as fires, severe lightning storms, power failures, etc.; and negotiating on an ad hoc basis with the ATS Supervisor the minimum acceptable response time respecting equipment failures based on available technical resources.	25
3.	Using the provided facilities at the TDM workstation and elsewhere, monitors and evaluates the technical performance of surveillance and communications systems used by the ACC.	10
4.	Manages the scheduling of preventative maintenance shutdowns for all electronic/electrical systems in the FIR associated with the ACC including those provided by telephone companies, DND, FAA or other agencies through the coordination and scheduled releases and emergency shutdowns of Communications, Radar, Navigational Aids, Automated ATS and other systems including building equipment for maintenance thereby ensuring the user, and ultimately the travelling public, of minimum interruption to service which could result in re-routing, diversions or other costly delays.	10
5.	Participates in the management of the maintenance program within the ACC and FIR by: processing all reports of user detected electronic equipment malfunctions and all requests for scheduled maintenance shutdowns which affect the ACC; and	15

- preparing, maintaining and verifying documentation.

6. Serves as a source of technical information to FIR personnel (both technical and operational) with respect to equipment use and system performance by: 5

- providing technical consultations to various electronics and ATS staff to assist them in solving problems on particular systems.

Note: The Area Control Center (ACC) provides air traffic control services for all aircraft flying according to instrument flight rules. The Flight Information Region (FIR) is a specific geographic area for which services are provided by the Area Control Center. For example, the Edmonton ACC provides services to Alberta, eastern B.C., the Yukon and part of the N.W.T.

SPECIFICATIONS

A. Skill and Knowledge — Degree C2 - 238 points

1. Specialized Technical Knowledge and Skills — Degree C

The work requires a broad general knowledge of all automated systems used in the Area Control Center including Radar Data Processing Systems (RDPS), Integrated Communications Control System (ICCS), National Flight Data Processing System (INFDPS) and Operational Information Display System (OIDS). Also required is knowledge of radar, navigation and communications systems used in the flight information region. Such knowledge is required because of the incumbent's responsibility as the Technical Services Branch representative within the Area Control Center for the continuity of all technical services by ensuring that all electronic systems in the flight information region providing these services meet user requirements.

2. Program Knowledge — Degree 2

The work requires knowledge of administrative and management practices to manage the scheduling of preventative maintenance shutdowns for all electronic/electrical systems in the flight information region. The work also requires a good knowledge of operation and objectives of the Area Control Center and flight information region to ensure appropriate responses to any degradation in systems.

B. Responsibility — Degree C3 - 306 points

The work requires judgement in establishing priorities for the repair of equipment and when determining the optimum method whereby service can be restored in the event of major disruptions. The work requires adaptation of the terms of agreements reached with Air Traffic Services relative to the minimum response time respecting failure of equipment.

The impact of the work is on the effectiveness, availability and safety of the air navigation system for the flight information region. Errors in judgement could result in danger and inconvenience to the flying public, embarrassment to the Ministry, inconvenience and increased costs to airline companies.

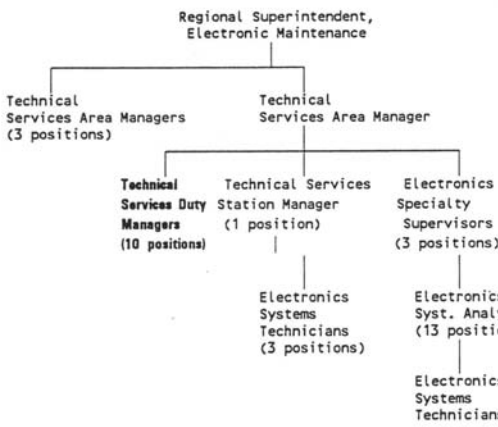
C_ Workina Conditions — Degree 1 – 010 points

The work is performed in a clean room environment with little exposure to disagreeable conditions; however, on occasion, there are requirements to visit remote sites.

D. Supervision — Degree A - 010 points

There is no continuing or substantive responsibility for supervising other employees.

BENCH-MARK 8



S

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 9 Level: EL-06

Descriptive Title: Technical Instructor, Electronics Systems Point-Rating: 504

Reports to: Supervisor, Electronics Training

Duties:	% of time
1. Conducts courses at the Transport Canada Training Institute (or elsewhere) for all levels of technicians and/or engineers of Transport Canada (and occasionally other departments) in the theoretical and practical aspects of operational methods and procedures, logic circuit operation, diagnostic programming, maintenance procedures, test methods, fault finding techniques, repair methods, construction techniques, installation methods and safety practices applicable to complex electronic systems by: giving formal classroom instruction on theory of operational methods and procedures? as applied to specific equipment and systems to journeyman level employees; using films, VCR, and other training aids to improve and enhance presentation; - administering and marking theory and practical tests and final examinations; providing practical laboratory instruction to individual students or groups of students on how to operate, program in machine and assembly language, maintain, construct, repair, install, test and calibrate equipment using industry standard test instruments and in accordance with prescribed safety practices; and by assessing course effectiveness and student performance.	70
2. Plans the presentation of established courses to meet predetermined objectives by: interpreting detailed lesson directives and preparing his or her lesson plans from these directives; reading and analyzing pertinent technical material and tailoring it to his or her requirements; and maintaining a current knowledge of pedagogical techniques used in teaching adults.	15
3. Design new courses to meet predetermined objectives by: attending factory courses on new equipment; writing course material such as detailed lesson directives, lesson plans, lecture notes and detailed explanations of devices and systems; and reviewing, analyzing and editing (for purposes of training) manufacturers' equipment manuals; and, where necessary, selecting pertinent information, schematics, etc., and organizing this material into a course manual.	10
4. Performs other duties such as: providing maintenance assistance to the T&E Training Center maintenance staff; and driving, a vehicle equipped with navigation receivers while conducting Navaids courses.	5

SPECIFICATIONS

A. Skill and Knowledge — Degree C2 - 238 points

1. Specialized Technical Knowledge and Skills, — Degree C

The work requires a broad general knowledge of electronics systems in the areas of navigational aids, radar, telecommunications and computers. Such knowledge is required in the planning and conduct of courses in the operation, maintenance and repair of electronic systems.

2. Program Knowledge — Degree 2

The work requires knowledge of training techniques used in the teaching of adults including testing, evaluation and counseling methods. Knowledge of the operating environment of the various regions of the Department is also required in order to provide trainees with advice and information relevant to their anticipated assignments.

S. Responsibility — Degree C2-246 points

The work requires initiative and judgment in developing new courses for electronic systems and in reviewing and updating ongoing courses within the established curriculum.

The work has an impact on the development of skills in students relative to the maintenance and repair of electronic systems and equipment. The incumbent conducts courses for all levels of technicians and/or engineers, with emphasis on journeyman Level technicians.' The work thus has an indirect impact on the cost and effectiveness of field maintenance and the efficient operation of Transport Canada's electronic systems.

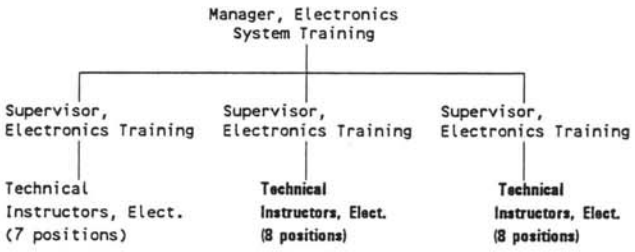
C. Working Conditions — Degree 1-010 points

The work is performed in a clean room environment with periods of standing required when teaching.

0. Supervision — Degree A-010 points

There is no continuing or substantive responsibility for the supervision of other employees.

BENCH-MARK 9


Manager, Electronics
System Training
Supervisor,
Electronics Training
Supervisor,
Electronics Training
Supervisor,
Electronics Training
Technical
Instructors, Elect.
(7 positions)
Technical
Instructors, Elect.
(8 positions)
Technical
Instructors, Elect.
(8 positions)

BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 10

Level: EL-05

Descriptive Title: Technical Services Station Manager (Work Center)

Point-Rating: 483

Reports to: Technical Services Area Manager

Duties.	% of time
1. Manages the maintenance program for the electronic systems and equipment maintained by the work center to ensure that all systems operate within the National Maintenance Program Standards and meet the operational requirements of user agencies by: planning and organizing the maintenance schedule for the equipment/systems in conjunction with the National Maintenance and Certification program requirements and modifying schedules in accordance with ongoing changes in procedures and policies; directing effective completion of the scheduled maintenance program to ensure a high degree of equipment availability; carrying out a program of quality control to ensure that specified standards and tolerances are maintained as prescribed in pertinent source documents; supervising up to four electronic technicians in the specialty fields of navigational aids, communications and special devices so as to carry an effective maintenance program at the airport, several satellite stations and remote sites; inspecting and evaluating new installations, participating in the completion of Proof of Performance (POP) tests and signing acceptance reports on behalf of the TAM; and planning and directing minor installation projects; assisting regional authorities in developing electronic maintenance procedures for specialized systems and "one-of-a-kind" installations which are not included in published manuals to ensure effective maintenance of facilities and systems; and reviewing requirements for maintenance expenditures for inclusions in annual estimates and submitting annual budget requirements to the Technical Services Area Manager.	60
2. Maintains and certifies a variety of electronic equipment and systems at his or her assigned station and other sites in the Work Center.	15
3. Performs other duties such as: administering an on-site program of development for systems technician training in accordance with the National Certification and Qualification program and directs a program of on-the-job training on equipment for all subordinate employees; developing and maintaining an effective user liaison program with managers or representatives of user agencies (ATS, Airports, DND, Airlines, other government Agencies) as to the quality, efficiency and effectiveness of services provided; and monitoring and controlling an adequate domestic and industrial safety program in the management area.	25

SPECIFICATIONS

A. Skill and Knowledge — Degree 82 - 179 points

1. Specialized Technical Knowledge and Skills — *Degree*s

The work requires knowledge of electronic theory, techniques and practices in order to maintain, certify and supervise the maintenance of electronic systems and equipment and to conduct quality control. The equipment maintained includes navigational aids, communications equipment, radar and special devices.

2. Program Knowledge — Degree 2

The work requires knowledge of management and administrative practices in order to manage a maintenance unit. Knowledge is required in such areas as training, staff relations, forecasting and budgets. The work also requires a good knowledge of applicable national maintenance conditions affecting the operation of electronic equipment and systems and equipment in assigned locations and installations.

3. Responsibility — Degree B3-239 points

The work requires initiative and judgment in planning and organizing maintenance schedules and priorities and in conducting quality control to ensure that specified standards and tolerances are maintained.

The work has impact on the safety and availability of operational equipment used in the control and movement of air traffic and in the effective deployment of subordinate staff. Errors in instructing staff would result in failures to diagnose faults in electronic systems, hazardous air traffic conditions, inconvenience to users and increased maintenance costs.

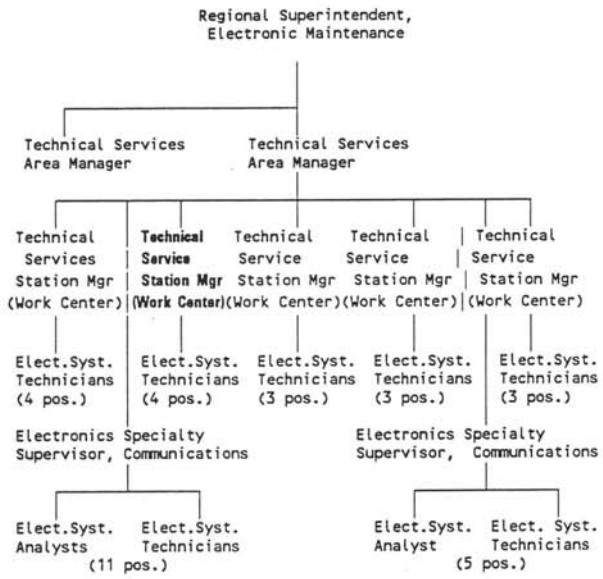
Working Conditions — Degree 2-040 points

The work involves frequent overnight travel and occasional exposure to inclement weather and other disagreeable conditions in performing maintenance functions at remote sites.

1. Supervision — Degree B-025 points

The work involves supervision of four Electronics Technicians.

BENCH-MARK 10



BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 11 Level: EL-05

Descriptive Title: Electronics Systems Analyst Point-Rating: 443

Reports to: Electronics Specialty Manager

Duties. % of time

1. Responsible on a shift basis for the technical integrity for an assigned group of electronics systems hardware and software, digital and analogue; electronic instrumentation and data transmission which provide Air Navigation Services technical services; also for the technical certification of these systems according to the National Maintenance Program Standards, accomplishing this and other duties from within the area control center by: 45

- ensuring that all procedures laid down in appropriate National Maintenance Standards and Procedures are carried out in the prescribed manner, including personally performing these procedures when necessary;
- making the appropriate certification statements;
- ensuring effective completion of the scheduled maintenance procedures;
- ensuring that the maintenance routines are completed on a timely basis in order to avoid any adverse effects due to certification time out;
- establishing priorities for module repair within the assigned systems in order to meet user's requirements; and
- verifying that equipment which may have undergone "contract" repair or maintenance, is technically acceptable for return to system use.

2. Analyses system performance, including electronic, electrical, software and operational aspects, to minimize disruption to service by: 35

identifying through frequent analysis system degradation and taking immediate action to isolate the faulty module from the system (reconfiguration);

identifying system faults and correcting same quickly to reduce system downtime;

investigating special problems and developing directives and instructions where required to meet local conditions;

controlling and adjusting software technical parameters to optimize system performance;

performing in-depth fault analysis to recommend solutions for repetitive failures to the appropriate maintenance authority;

recommending design changes, based on first-hand experience for increasing the maintainability (i.e. increasing the resolution or completeness of diagnostics); and

as the technical expert on assigned systems, explaining to ATS staff the technical workings of the components of a system as they relate to any unsatisfactory operation/performance.

3. Supervises electronics system technicians assigned during the shift by: 15

identifying workload requirements at the beginning of a shift and ensuring that the Electronics Systems Specialist and Technical Services Duty Manager are aware of unusual requirements.

4. Participates in the management of the maintenance program by: 5

- negotiating maintenance priorities with the TDM to provide maximum use of resources;
- recommending whether or not to continue with the current company(ies) providing contract repair service following evaluation of their effectiveness; and
- evaluating the quality of maintenance services and procedures.

SPECIFICATIONS

A. Skill and Knowledge — Degree Cl-169 points

1. Specialized Technical Knowledge and Skills — Degree C

The work requires a theoretical and practical knowledge of: electronic systems (hardware and, software) digital and analogue; electronic instrumentation and data transmission. Such knowledge is required to analyse system performance and system faults and to maintain responsibility as the technical expert, for an assigned group of systems. Skill is required in fault isolation and in the use of test equipment.

2. Program Knowledge — Degree 1

The work requires a knowledge of administrative and management practices to supervise electronic systems technicians during the shift.

B. Responsibility — Degree B3-239 points

The work is performed according to national maintenance standards and procedures. Judgment is required in analyzing faults in electronic systems and correcting the same. Judgment is also required in recommending solutions for repetitive failures in electronic systems.

The work has an impact on the technical integrity of an assigned group of systems in the air traffic control center. Error in judgment could result in danger and inconvenience to the flying public, embarrassment to the Department, inconvenience and increased costs to airline companies.

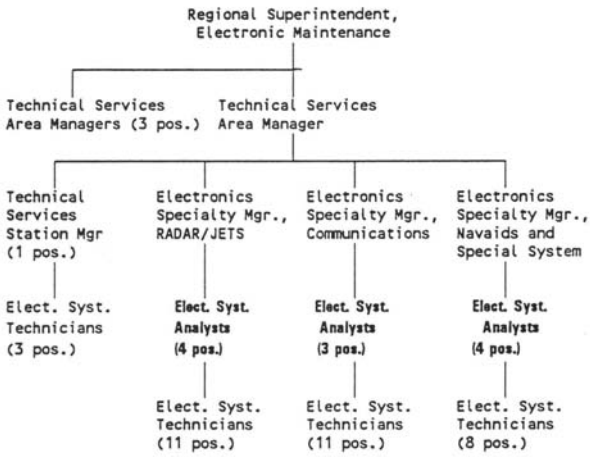
Working Conditions — Degree 1-010 points

The work is normally performed in a clean room environment which houses the electronic systems. There is occasional exposure to disagreeable conditions including weather conditions and climbing.

1. Supervision — Degree B-025 points

The subject position functions as a first level supervisor, on a shift, responsible for supervising one to four electronic systems technicians.

BENCH-MARK 11



BENCH-MARK POSITION DESCRIPTION

Bench-Mark Number: 12 Level: EL-05

Descriptive Title: Electronics Development Technologist Point-Rating: 435

Reports to: Section Head, Manufacturing and Technical Development

Duties:	% of time
1. Designs and develops highly advanced integrated electronic data collection, sensing and control instrumentation systems and sensors to meet the program objectives of limnological, biological, chemical, hydraulic and arctic oceanographic projects of the Section by: determining the system requirements and evaluating the technical feasibility in relationship to funds and recommending the most economical approach to solve the project needs; completing the design of devices to the final conception stage; complete the conceptual drawings, part and material lists and present such for approval; preparing detailed digital-logic and analog circuit diagrams, timing diagrams, electronic schematics, wiring diagrams, printed circuit board layouts and packaging configuration sketches; manufactures the devices; upgrading the design of existing commercial or prototype instrumentation; and preparing detailed test specifications and procedures for conducting tests and evaluations of equipment performance.	60
2. Evaluates, tests and modifies scientific data collection instruments, sensors and systems used for measurement, data handling and processing applications, by: analyzing the operational characteristics of instrument systems determining the most feasible approach to the solution of the device inadequacies; designing sub-component assemblies, preparing prototype and production board layouts; and building sub-assemblies within or outside the devices and conduct extensive laboratory and field testing of the modified devices and make changes where necessary.	20
3. Surveys, selects and recommends for procurement specialized electronic data collection and control instrumentation, sensors and systems by: originating requisitions, writing detailed procurement performance specifications and contractual statements-of-work for typical systems; reporting orally and/or in writing on the progress of contracts; and as Project Manager of specified contracts, monitors the contract flow and scheduling activities, accepts sectional completions and certifies progress payments to contractors for acceptance.	15
4. Performs other duties such as following safe working procedures, using any specified protective devices and safety equipment and reporting immediately any accident, unsafe and unsatisfactory condition.	5

SPECIFICATIONS

A. Skill and Knowledge — Degree C1-169 points

1. Specialized Technical Knowledge and Skills — Degree C

The work requires specialized technical knowledge in order to design electronic data collection, sensing and control instrumentation systems and sensors. Knowledge is required in the areas of: electronics theory and practice; the performance and application of all major families of integrated and hybrid circuits; and the implementation and operation of systems elements and theoretical digital and analog design techniques. Skill is required in using a variety of electronic testing equipment.

2. Program Knowledge — Degree 1

Some knowledge of the objectives of research projects is required.

8. Responsibility — Degree C2-246 points

The work requires initiative and judgment in: designing, developing and constructing electronic equipment to meet the general performance specifications prescribed by the Research Scientist. The work is performed according to broad design guidance and general instructions.

The work has an impact on the effectiveness of limnological, biological, chemical, hydraulic and arctic oceanographic projects. Errors would result in excessive project costs and delays, as well as in the loss of valuable scientific data.

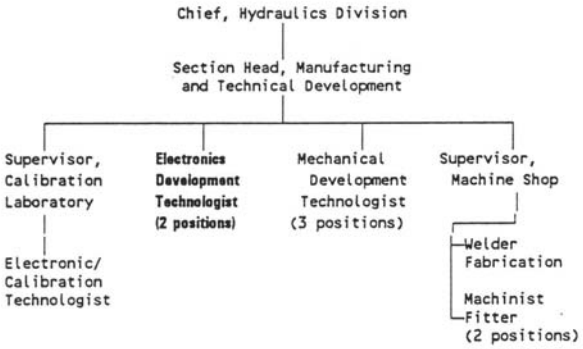
C. Working Conditions — Degree 1-010 points

The work involves infrequent exposure to disagreeable conditions such as lifting heavy equipment while working outside the laboratory.

0. Supervision — Degree A-010 points

There is no continuing or substantive responsibility to supervise the work of other employees.

BENCH-MARK 12



BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 13 Level: EL-05

Descriptive Title: Field Installation and Construction Technician Point-Rating: 442

Reports to: Project Supervisor

Duties. % of time

1. Plans equipment installations to ensure that operational requirements are met and that installation details are complete by: 20

visiting sites or ships to gather technical data for project planning;

- preparing detailed specifications for installation of equipment by own staff or by contractors;
- by establishing material requirements to supplement major equipment purchased for a project;
- drawing detailed wiring diagrams to use in construction and installation procedures;
- investigating and determining a source of supply for components and materials required; and
- requisitioning necessary equipment, parts and supplies for installations and scheduling the delivery of parts and equipment to selected sites.

2. Installs, modifies and adjusts equipment and systems or parts of systems to ensure maximum performance and efficiency to users of the systems by: 50

assembling and placing components in proper orientation and setting up equipment according to layout;

wiring electronic circuits of individual components and units;

climbing structures such as ships' masts and towers to a height of 50 feet for testing equipment and antenna installations;

completing detailed diagrams of all modifications to units, of interconnecting circuitry and of all fabricated equipment;

writing maintenance instructions, training maintenance staff, completing Project Completion Forms, and updating appropriate drawings; and

completing progress reports and Proof of Performance Reports and discussing any recommendation or deficiencies with the Project Supervisor.

3. Tests the equipment and systems to ensure compliance with standards of operation under field conditions by: 15

measuring the performance of each individual piece of equipment;

assessing test results and discussing results with engineering and operational personnel; and

reporting test results to the Project Supervisor and suggesting methods to improve the efficiency of future tests.

4. Performs other duties such as: 15

discussing work plans, explaining and describing work methods, and recommending disciplinary action and providing input to appraisals of employees assigned to projects; and

- providing technical guidance to shipyard personnel or contractors to ensure that contract obligations are satisfied.

SPECIFICATIONS

A. Skill and Knowledge — Degree B2-179 points

1. Specialized Technical Knowledge and Skills — Degree B

The work requires knowledge of electronic theory, installation techniques, maintenance procedures and of the characteristics of communications systems in order to install modify and adjust electronic equipment and systems. Skill is required in wiring electronic circuits and using test equipment.

2. Program Knowledge — Degree 2

The work requires knowledge of the operations and program objectives of clients throughout the region in order to participate in the planning of equipment installations and to prepare specifications for installation. Also required is knowledge of national standards in order to ensure compliance of equipment with such standards. Knowledge of procurement techniques and practices is also required in order to determine sources of supply for components and materials required for installations and to requisition the necessary equipment and supplies.

B. Responsibility — Degree B2-178 points

The work requires initiative and judgment in preparing specifications for installation of equipment and in installing modifying and adjusting equipment and systems.

The work has an impact on the timely installation of electronic equipment and systems. Errors would result in delays to construction programs, inconvenience to service users and increased costs.

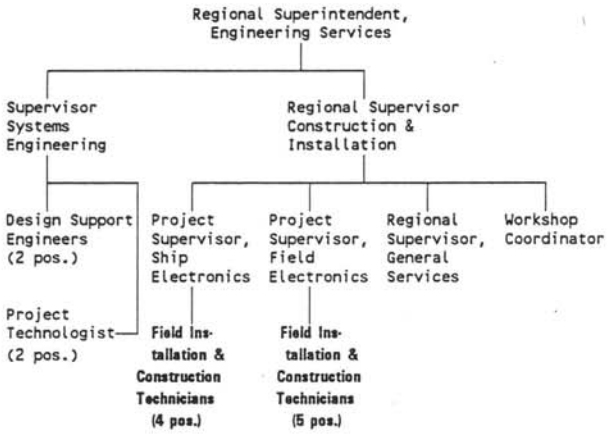
C. Working Conditions — Degree 3-075 points

The work involves frequent exposure to several disagreeable conditions including extremes of temperature; lengthy absences from home in excess of 50 days; climbing ships' masts and towers and traversing difficult terrain to reach the construction site.

0. Supervision — Degree A-010 points

There is no continuing or substantive responsibility for supervising the work of other employees.

BENCH-MARK 13



BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 14 Level: EL-04

Descriptive Title: Electronic Systems Technician Point-Rating: 339

Reports to: Technical Services Station

Duties: % of time

1. Maintains and installs a variety of electronic equipment and systems at equipment sites in a telecommunications area including Primary Surveillance Radar (PSR), Secondary Surveillance Radar (SSR), Static Uninterruptable Power Unit (SUPU), Radar Data Processing System (RDPS) and Display Site Equipment (DSE), and carries out the area preventive maintenance program by: 80

   - selecting and attaching test instruments to measure circuit characteristics, in accordance with standard procedures;
   - comparing instrument readings with standard values to determine if equipment is performing within approved tolerances;
   - assessing other performance characteristics such as clarity of radar display;
   - adjusting equipment to meet functional performance standards;
   - isolating, identifying and replacing defective components;
   - checking and calibrating built-in test instruments to ensure accurate measurement of circuit characteristics; and
   - installing and/or modifying electronic equipment to meet new requirements and to improve serviceability of equipment and systems.

2. Provides maintenance service during the hours of the shift, in a telecommunications area, to ensure optimum effectiveness of operation of the electronic equipment and systems by: 15

   investigating trouble in the performance of electronic equipment and systems in response to reports from users; and

   adjusting or repairing any item of electronic equipment to restore service.

3. Performs other duties such as recording work done in equipment logs and maintenance report forms and providing guidance to new employees during familiarization and on-the-job training. 5

SPECIFICATIONS

A. Skill and Knowledge Degree B1-111 (points)

1. Specialized Technical knowledge and Skills Degree B

   The work requires a knowledge of electronic theory, techniques and practices in order to maintain, adjust and certify complex electronic equipment and systems such as radar, secondary radar, scan converters, weather radar, target simulators, navigation systems, instrument landing systems and various radio transmitters and receivers. Skill is required in using test equipment in the maintenance of electronic equipment.

2. Program Knowledge Degree 1

   The work requires knowledge of routine internal administrative procedures.

1B. Responsibility — Degree B2-178 points

The work requires initiative and judgment in maintaining and adjusting electronic equipment and systems in accordance with standard procedures and, when investigating problems, in the performance of electronic systems and equipment. Technical advice and guidance are not readily available when working at remote sites and during shifts.

The work has an impact on the safety of operational equipment used in the control and movement of air traffic. Errors would increase hazardous air traffic conditions, inconvenience users and cause increased maintenance costs.

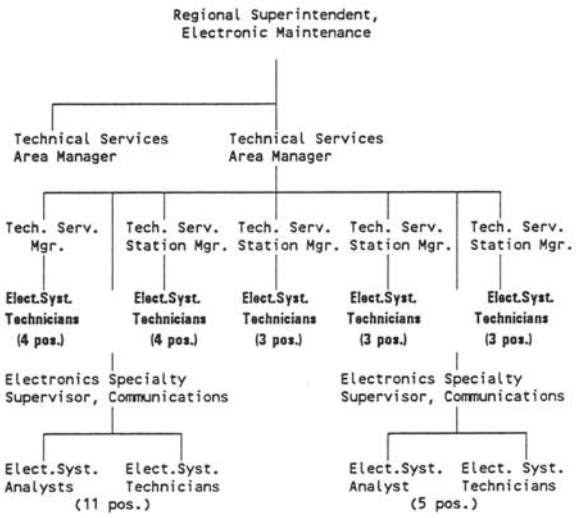
C. Working Conditions — Degree 2-040 points

The work involves occasional exposure to several disagreeable conditions including overnight travel, inclement weather, climbing and awkward work positions.

D. Supervision — Degree A-010 points

There is no continuing or substantive responsibility for supervising the work of other employees.

BENCH-MARK 14



BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 15 Level: EL-04

Descriptive Title: Radio Inspector Point-Rating: 317

Reports to: Section Head

Duties: % **of time**

1. Evaluates the technical aspects of applications for proposed radio stations and systems to determine their compatibility with existing assignments while ensuring adequate communications services to the applicant by: 35

determining clients' radio communications requirements through discussion, and recommending changes or alternatives to ensure the most efficient manner of satisfying their requirements in keeping with the limits of legislation and policy requirements;

calculating whether the proposed power and antenna pattern are suitable for the intended coverage and the required interference protection;

performing computer assisted electro-magnetic compatibility studies as well as path loss calculations to determine if a selected frequency is suitable for assignments for a given set of parameters and location;

recommending changes to applications or alternate systems which will improve service or conserve the spectrum;

recommending denial of applications due to non-eligibility, technical inadequacies, economic infeasibility or potential enforcement risks; and

preparing, signing and issuing letters of authority.

2. Investigates and eliminates interference to radio and non-radio devices affecting the public, commercial, government, safety services and other users of the radio frequency spectrum by: 35

determining the nature and scope of the interference through interview, examination and investigation and measurement using specialized electronic equipment;

analyzing and interpreting acquired data to determine source identification, location and the cause and effect relationship through an appropriate combination of theoretical and mathematical calculations and signal analysis based on measured data;

restricting or ordering the discontinuance of the use of radio, electrical or other apparatus found causing interference pending final corrective action;

explaining and interpreting acts, regulations, and procedures concerning actions which licensees must take to eliminate interference; and

identifying and reporting on instances of suspected deliberate violation and participating in the prosecution action initiated under the provisions of the Radio Act.

3. Ensures the licensed systems and stations are operated and maintained in accordance with regulations, approved technical briefs, terms of license and departmental policy by: 20

inspecting the station to verify equipment, antenna and ancillary equipment;

taking and evaluating a variety of on-site and off-air measurements to determine specific operating parameters;

meeting with licensees to discuss technical and regulatory discrepancies;

- analyzing technical performance of broadcast undertakings and systems to ensure, operation and maintenance in accordance with terms of license, technical briefs, acts and regulations and to resolve and report on performance deficiencies; and

- investigating suspected infractions of acts and regulations for possible prosecution action.

4. Performs other duties such as: 10

examining candidates and issues certificates of proficiency for all classes of professional and amateur operators;

performing inspections of communications, electronic and radio equipment on ships, and aircraft to certify compliance with acts or regulations; and

assisting in providing on the job training to new employees.

SPECIFICATIONS

A. Skill and Knowledge Degree B2-179 points

1. Specialized Technical Knowledge and Skills Degree B

The work requires knowledge of electronic theory, practices and techniques applicable to communications systems and test equipment. Also required is knowledge of the operating characteristics and parameters of communications systems. Good communications skills are required in order to deal effectively with clients.

2. Program Knowledge Degree 2

The work requires knowledge of a variety of legislation, regulations and guidelines related to radio system authorization, resolution of interference problems concerning radio and non-radio devices and radio operators' qualifications.

B. Responsibility Degree B1-118 points

The work requires the exercise of judgment in: evaluating the technical aspects of proposed radio stations and systems and determining or recommending approval or denial; eliminating interference to radio and non-radio devices; and in communicating with clients concerning technical and regulatory matters.

The work has an impact on applicants for radio stations and systems. The work also has an impact on a variety of users of the radio spectrum. Ineffective work could result in increased interference and loss of usefulness of communications systems.

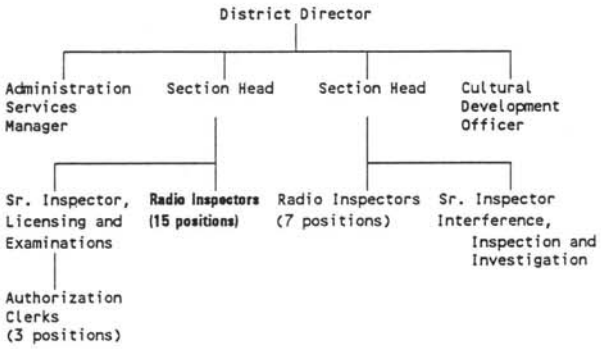
C. Working Conditions Degree 1-010 points

There is infrequent exposure to disagreeable conditions such as cold weather when conducting investigations.

0. Supervision Degree A-010 points

There is no continuing or substantive responsibility for supervising other employees.

BENCH-MARK 15



BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 16 Level: EL-04

Descriptive Title: Instrumental Methods R & D Technologist Point-Rating: 309

Reports to: Head, Instrumentation Research and Development Section

Duties:	°/% of time
1. Carries out the development work necessary to translate basic experimental circuit designs and mechanical layouts into suitably packaged working prototype stand-alone instruments or computer based data acquisition systems for earth science applications in a research development and demonstration environment by: building circuits onto reusable "breadboard" modules; and designing interconnection layouts and assembling and wiring the necessary cable connectors, plugs, sockets, etc.	20
2. Maintains, operates and tests sophisticated experimental field and laboratory systems which include: a field portable borehole logging system, a laboratory gamma ray spectrometer, a multi-sensor laboratory physical and a chemical parameter measurement system. All of these systems incorporate minicomputers or microprocessors, magnetic tape drives and CRT or LED display peripherals, and computer controlled electromechanical equipment such as winches or sample changers. Maintains a variety of other laboratory and field instruments which include: hand-held scintillometers, down-hole VLF, pulsed EM and induced polarization equipment. These functions involve: using standard test equipment (signal generators, logic probes, oscilloscopes, frequency counters, DVMs, etc.) to identify faults; using diagnostic routines designed to reveal the cause of the malfunction if the system is controlled by a minicomputer or microprocessor; replacing components, modules or system sub-assemblies as necessary to restore proper operation; and providing expertise in field trials of new or existing equipment.	30
3. Designs and carries out modifications to systems or instruments to be used in research projects by: maintaining a close liaison with users of equipment for which the incumbent is responsible to determine where hardware or software changes in a system are necessary; modifying hardware and/or software which will accomplish the objective; ensuring through adequate tests that no "bugs" have been introduced into the system by the changes made; and updating the applicable documentation to reflect the modifications.	20
4. Produces custom large scale integrated circuits and circuit schematics using various computer systems for research projects.	15
5. Performs other duties such as: re-ordering stocks of laboratory supplies on a continuing basis with sufficient lead time to ensure continuity of supply; arranging with service firms or OEM's for repairs to test equipment or specialized computer sub-assemblies; dealing with local manufacturing firms which are making mechanical or electronic sub-assemblies to in-house designs under contract; and	15

- using a sophisticated data base management software system for inventory control and cost accounting.

SPECIFICATIONS

A. Skill and Knowledge — Degree B1-111 points

1. Specialized Technical Knowledge and Skills — Degree B

The work requires technical knowledge and skill to participate in the development of instrumentation for earth science application and maintain, operate and modify electronic equipment and systems. Knowledge is required of: solid state electronic theory and practice; personal computers and their interface to peripheral devices; and the purpose and function of a wide variety of laboratory test equipment. Skill is required in the assembly of miniature components on to printed circuit boards.

2. Program Knowledge — Degree 1

The work requires knowledge of internal operational procedures related to the research program.

B. Responsibility — Degree 82-178 points

The work is performed in a laboratory under the direction of a senior technologist. Judgment and initiative are required in translating basic experimental circuit designs and mechanical layouts into suitably packaged working prototype stand-alone instruments or computer based data acquisition systems.

The work affects the usefulness of instruments and systems developed and maintained, the effectiveness and progress of the geophysical research program as well as the cost of such research.

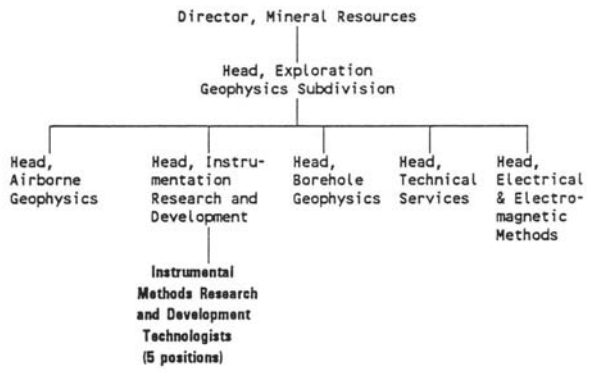
C. Working Conditions — Degree 1-010 points

There is an occasional requirement to handle heavy equipment in the laboratory.

0. Supervision — Degree A-010 points

There is no continuing or substantive responsibility for the work of other employees.

BENCH-MARK 16



BENCHMARK POSITION DESCRIPTION

Bench-Mark Number: 17 Level: EL-03

Descriptive Title: Electronics Technician Point-Rating: 181

Reports to: Supervisor, Telecommunication Shop

Duties:	% of time
1. Inspects, repairs, modifies, tests, adjusts and reconditions a wide range of communications and electronic equipment and complete systems used in the Land environment such as radio transceivers, intercom systems, telephone switchboards, radio equipment, tape recorders, audio-visual equipment and computers to the level of performance as specified in applicable standards and specifications by: - selecting and setting up appropriate test equipment; - studying the technical manual and specifications applicable to the equipment; - isolating and identifying defective components and replacing or repairing as required; and - re-assembling components and sub-assemblies.	50
2. Diagnoses equipment failures and determines remedial action. Repairs and replaces defective components using suitable tools and special aids.	15
3. Installs communication equipment and other electronic devices in military vehicles. Instructs junior military trade persons in theoretical and practical knowledge of the trade. Completes various technical forms. Required to drive OND vehicles on occasion.	35

SPECIFICATIONS

A. Skill and Knowledge — Degree 81-111 points

1. Specialized Technical Knowledge and Skills — Degree B

The work requires a knowledge of electronic theory, techniques and practices in order to inspect, maintain and install a variety of electronic equipment including radio sets, transceivers, intercom systems, telephones, switchboards, tape recorders and audio/visual equipment and computers. Skill is required in using electronic test equipment and in interpreting drawings.

2. Program Knowledge — Degree 1

The work requires knowledge of internal administrative procedures, established training techniques, completion of various technical forms and the requisitioning of parts and equipment.

B. Responsibility — Degree AI-050 points

The work requires initiative and judgment in repairing, adjusting and aligning electronic equipment and systems in accordance with specific instructions and procedures in technical manuals. Technical advice and guidance are available from the Shop Supervisor.

The work has an impact on the reliability and conformance of electronic equipment used by base military and civilian personnel. Errors would result in production delays, inconvenience to the customer and infringements of FCC frequency regulations.

C. Working Conditions — Degree 1-010 points

The majority of work is performed in an enclosed and environmentally controlled area. There is occasional exposure to disagreeable conditions such as cramped quarters.

0. Supervision — Degree A-010 points

There is no continuing or substantive responsibility for supervising the work of other employees.

BENCH-MARK 17