

**Job Class Profile:            Biomedical Engineering Technologist I****Pay Level:                      CG-31                      Pay Band:                      690-703**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	5	4	3	5	4	3	4	2	4	
Points	233	67	19	24	120	65	83	43	43	697

**JOB SUMMARY**

The Biomedical Engineering Technologist I is responsible to evaluate, test, calibrate and repair medical equipment and instrumentation. Work is performed in health care institutions supporting a variety of clinical procedures such as Diagnostic Imaging, ICU, Operating Rooms, Dialysis, Respiratory Therapy, Defibrillation, Cardiac Monitoring, Anesthesia, Surgery, Rehabilitation, Laboratory and Radiation Therapy, etc.

**Key and Periodic Activities**

- Diagnoses, calibrates, repairs and performs preventative maintenance on all medical equipment to ensure quality assurance standards are met.
- Provides medical equipment technical support and instruction to medical, nursing and other professional staff. Advises on equipment updates that may be required.
- Utilizes biomedical equipment database system to maintain records of maintenance and repair activities and records machine downtime.
- Inspects and tests new medical equipment considered for purchase.
- Assists outside vendors with major installation projects of biomedical equipment to ensure work is completed on a timely basis and in accordance with the needs of the Corporation.
- Orders repair parts and maintains inventory levels.
- Writes reports, policies, maintenance and calibration procedures and other documentation regarding equipment maintenance, calibration, performance and downtime.
- Coordinates warranty repairs.
- Interacts/communicates with shipping companies, international brokerages and customs offices regarding machine and part orders, shipping and delivery.
- Attends training courses on specialized equipment. Attends professional technical conferences.

**SKILL****Knowledge****General and Specific Knowledge:**

- Canadian Safety Association (CSA) Standards and Guidelines
- Medical Equipment Software

— Biomedical Instrumentation Industry

**Formal Education and/or Certification(s):**

— Minimum: 3 Year Diploma in Electronics Biomedical Engineering Technology

**Years of Experience:**

— Minimum: 2 to 3 years

**Competencies:**

- Follow instructions and work processes as outlined in equipment manuals
- Coordinate activities such as the installation of major equipment
- Provide advice to others and/or troubleshoot problems
- Operate a computer to manage work order/asset management database
- Write text such as policies, reports, procedures, etc.
- Operate, repair or calibrate machinery
- Design/develop new procedures for equipment operation
- Analyze or assess
- Develop new solutions to deal with new problems

**Interpersonal Skills**

- A range of interpersonal skills are used including listening to information from other people and asking questions to get information to assess and solve equipment problems, gain the cooperation of others to complete work tasks and to instruct medical, nursing and other professional staff on the proper use of equipment.
- Communications occur with employees within the immediate work area, department, within and outside the organization and include co-workers, supervisor, outside vendors and representatives from shipping companies, international brokerages and customs offices.
- The most significant contacts are with the supervisor for direction and advice/guidance to solve complex issues or problems; coworkers to share ideas and knowledge and work together as a team to find solutions to problems and with service representatives for equipment purchases, installation, and technical support assistance.

## EFFORT

**Physical Effort**

- The demands of the job occasionally results in considerable fatigue, requiring periods of rest.
- Lifting or moving objects less than 10 lbs such as a tool kit is a constant requirement and lifting, moving objects such as heavy covers from equipment, CT Scan, X-Ray tube, etc is required occasionally.
- Work involves sitting while conducting research on new equipment and/or completing routine paperwork. Walking is required to move among departments to provide support and perform repair work and there is an occasional requirement to work in awkward or cramped positions or body movement when performing equipment repairs.
- Manual or physical activities include fine finger or precision work when working on circuit boards and when entering data into the electronic data base; using hand tools such as screw drivers, soldering irons; use gross motor skills to move heavy objects such as a carbon tank for a dialysis water filtration system; operating equipment or machinery that requires very

controlled movement such as a drill press and maintaining physical balance is required when removing heavy objects while standing on a ladder.

### Concentration

- **Visual concentration or alertness** is a regular requirement when performing activities such as preventative maintenance inspections, taking measurements where dangerous voltages are present, intricate soldering, etc.
- **Auditory concentration or strain** includes listening to end users regarding medical equipment issues/problems or listening to equipment for unusual noises to diagnose problem.
- **Other sensory demands include smell** to determine if electronic components have overheated and are burning or when calibrating equipment, **touching** is required to see if excessive heat exists.
- **Alertness and concentration** are required when working in high voltage areas and taking measurements. **Higher than normal levels of attentiveness or alertness for the health and safety of others** is required when working on diagnostic imaging equipment to ensure that other employees are not exposed to high voltages or radiation.
- **Time pressures, interruptions, deadlines and lack of control over work pace** are experienced when medical equipment malfunctions, which requires immediate resolution to ensure ongoing operational requirements, are met.
- **Eye/hand coordination** is required use hand tools to repair and/or calibrate equipment.
- **Exact results and precision** are required when calibrating/adjusting medical devices to ensure patient safety.

### Complexity

- Work involves performing technical work in the installation, maintenance, calibration and repair of medical equipment which requires performing a series of tasks and activities that are different but allow for the use of similar skills and knowledge.
- Diagnosing and repairing a complex medical device or system requires problem solving, critical thinking and decision making skills to solve the problem.
- Reference material to assist in addressing problems, challenges and issues include equipment service manuals, factory training course education, company technical support, CSA Standards, information from end users, co-workers and supervisors.

## RESPONSIBILITY

### Accountability and Decision-Making

- Work independently in carrying out daily repair work but work tasks and activities are monitored and quality control measures are in place.
- Have authority to prioritize needs assessment and equipment repairs, determine repair and maintenance requirements and to restock parts to ensure an appropriate quantity is maintained.
- Supervisory approval is required for such things as non emergency purchases and changes to departmental policy.
- Discretion and independence of action can be exercised to order parts on an emergency basis in the absence of the Supervisor and to remove equipment from service that is not working

properly to ensure patient and operator safety.
— Provides advice to co-workers on the diagnosis and repair of equipment.
<b>Impact</b>
<ul style="list-style-type: none"> <li>— Work results can have a positive impact within the immediate work area, department, inside/outside the organization and on clients/patients/general public as well as on resources such as equipment, finances, health and safety and corporate image as properly maintained and repaired equipment minimizes equipment down time, decreases financial costs, reduces patient wait times and protects the health and safety of the patient and equipment operator.</li> <li>— Mistakes or errors in calibration of equipment such as defibrillator, ventilator, dialysis machine, anaesthetic machine, patient monitor, etc., could result in patient injury and/or death as well as destroy the equipment. Equipment malfunctions can result in delays in patient care and system failures.</li> <li>— Errors are typically identified and resolved within hours of problem identification. Quality Control checks are in place to minimize mistakes and downtime.</li> </ul>
<b>Development and Leadership of Others</b>
<ul style="list-style-type: none"> <li>— Not responsible for the supervision of staff.</li> <li>— Provide leadership and development such as on-the-job advice, direction, feedback, orientation, on-the-job training, etc., to new employees.</li> </ul>

## WORKING CONDITIONS

<b>Environmental Working Conditions</b>
<ul style="list-style-type: none"> <li>— There is a requirement for safety precautions and safety equipment such as eye protection when using power tools, radiation badge for monitoring radiation exposure and safety boots when lifting or moving heavy medical equipment, lead shields when working on x-ray equipment and face shields and chemical resistant gloves when working with caustic substances.</li> <li>— The likelihood of minor cuts, bruises, abrasions or minor illnesses resulting from hazards in the job is moderate. Fractures, partial or total disability is limited.</li> <li>— Exposed to undesirable conditions in the workplace such as hazardous cleaning chemicals, bodily fluids such as blood on medical equipment, electric shocks when working on equipment, awkward or confining spaces such as the inside of the gantry of a Nuclear Medicine Gamma Camera, sharp objects, radiation from x-ray equipment, etc.</li> </ul>