



Bock Consulting

Job Analysis

Job Title	Foreman–Satellite Transit System (STS) Electronic Technician Group (AVM)	Worker	
DOT Number	828.161-010, 003.161-014, and 828.261-022	Claim Number	
Employer	Port of Seattle	Employer Phone #	(206) 787-3000
Employer Contact	Allen Tygesen	Date of Analysis	9/6/11; 12/28/16; 1/25/19

- Job of Injury
 Transferable
 New Job
 8-10 Hours Per Day
 4-5 Days Per Week
 Skills Job

Job Description, Essential Functions, Tasks and Skills:



The Port of Seattle is a municipal corporation created on September 5, 1911 by the voters of King County. The Port of Seattle is divided into operating divisions, plus other departments that support the divisions and the broad mission of the Port: 1) Aviation Division, 2) Maritime Division, and 3) Economic Development Division.

The Aviation Division owns and operates Seattle-Tacoma International Airport. Sea-Tac Airport handles more than 40 million passengers a year, and offers state-of-the-art air cargo facilities. The Aviation Division employs a maintenance staff which is responsible for all tasks associated with the maintenance and on-going operations at Sea-Tac Airport.

This job analysis is for a Foreman overseeing the work done by Automated Control Specialists working on the Satellite Transit System (“STS”) in the Aviation Maintenance Department.

The STS at Sea-Tac Airport consists of a north and a south loop, with a shuttle track connecting the two loops. The Airport has 21 passenger cars that can be configured to meet passenger load demands.

Essential Functions:

The Foreman is responsible for the day-to-day supervision and organization of the Automated Control Specialists working on the STS to monitor, maintain, troubleshoot, and repair the electronic control equipment and systems related to the automated people-mover trains used to transfer passengers between airport terminals at Sea-Tac Airport. In addition to the





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supervisory tasks, the Foreman will also be asked to perform general system maintenance/repair/ installation-related tasks.

The STS trains do not have drivers. The trains are controlled by complex electronic and computerized systems that are monitored and controlled remotely. Electronic sensors and network components located on the train cars and throughout the system provide speed, location, and other data used to operate and control the trains.



STS Electronic Technician Group Foremen are scheduled 4-5 days a week, 8-10 hours per day around the clock at Sea-Tac Airport. The Foremen supervise the Automated Control Specialists who are scheduled on three shifts (day, swing, and graveyard).

The Foreman may work in a shop office or in a central workshop; however, there are times when the Foreman may have to travel to various parts of the STS to retrieve or repair a disabled train car, install, repair, or adjust equipment, or perform inspections.

The work performed by an STS Electronic Technician Group Foreman can be categorized as follows:

Work Category	Estimated Time
Office/desk/administrative work (including meetings)	25-40%
Supervising work and personnel and providing assistance in and around shop	15-20%
Supervising work and personnel and providing assistance in the field	0-10%
Performing trade-specific work	30-60%
Total	100%

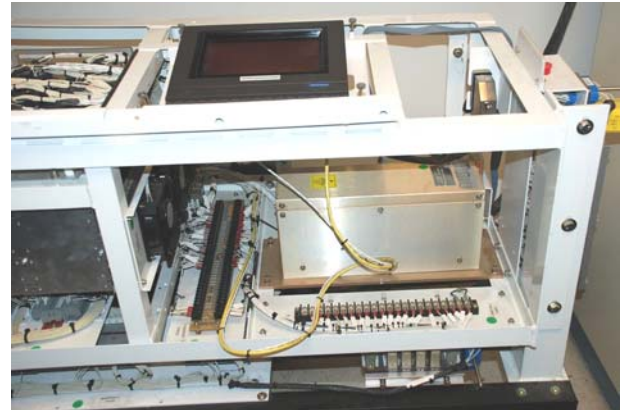
Tasks assigned to the Foreman Overseeing the Automated Control Specialists

- Receive notifications of new work orders/requests (via telephone, email, or job tracking system). Develop plans for completing requested projects. Plan for material, equipment, PPE, and staffing needs.
- Order parts, supplies, and or materials needed for projects. Work with General Foreman or Purchasing to ensure correct products and items are ordered and available when needed. Periodically work with vendors related to supplies and or materials needed.
- Prepare and or review site specific safety plan for each project/work task. Prepare job plans and supporting documentation as needed.
- Coordinate scheduling with other trades to ensure materials, equipment, and workers from other trades are available as needed to complete assigned work orders/projects. Coordinate with outside vendors/contractors/entities.



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- Prepare personnel schedules and assign work tasks.
- Enter time by work order on a daily basis into job tracking system (Maximo). Review daily time entered by crew and approve, as applicable.
- Ensure description of work completed is available and or correct in work log.
- Complete all required forms and documents.
- Send and respond to electronic mails.
- Visit project sites and oversee/inspect completed work. Ensure work is being performed in a safe manner.
- Meet/connect with crew (as applicable) daily to manage workflow, address issues, and reassign personnel based on work demands.
- Potentially lead periodic meetings to provide training and discuss important safety issues.
- Attend periodic meetings with supervisors and other entities.
- Coordinate work priorities with supervisors.
- Assist Specialists with technical input, answer questions from crew, and provide troubleshooting advice as needed.
- Assist crew in choosing tools, equipment and materials.
- Ensure crew has current certifications and or training as required by law or ordinance.
- Potentially assist with responses to requests for bids.
- Drive and or maneuver train cars into repair shop area and positioning cars over repair “pit.”
- Inspect electronic devices. Run diagnostic tests on electronic devices to test function/ operation. Troubleshoot issues to identify and target issues. Perform repairs or replace components as needed. Inspections/assessments may be done in the central workshops, or throughout the STS (for example, inspecting the sensors located throughout the STS, or inspecting the sensors and controllers used to open/close doors in the transit stations).
- Maintain the electronics systems assigned to Automated Control Specialists. This may include completing emergency maintenance (“EM”), corrective maintenance (“CM”), or preventive maintenance (“PM”) projects.
- Install new/updated electronic equipment and systems.
- Repair and/or rebuild reusable equipment.
- Respond to calls regarding disabled train cars and or requests for





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assistance.

- Assist other crafts as requested.
- Perform other tasks as requested.

Necessary skills and abilities include the:

- Knowledge and skills necessary to install, maintain, and repair electronics systems in an efficient and safe manner.
- Knowledge of the hazards and safety precautions associated electronic, electrical, and electro-mechanical devices.
- Knowledge of computer networking basics. Knowledge of programmable logic controls, including installation, testing, maintenance and repair.
- Ability to identify and troubleshoot an issue quickly, identify the best method(s) to address the issue, and correctly complete the identified task.
- Ability to utilize critical thinking and judgment in defining, analyzing, and resolving problems.
- Skills to complete the assigned task(s), using all of the various types of tools and equipment, in a safe manner. Ability to operate a motor vehicle safely.
- Ability to take initiative and be responsible for getting work done with limited supervision in an expedient and timely manner.
- Ability to read and interpret blue prints, schematics, drawings and detailed electronics systems technical specifications.
- Excellent time management and prioritization skills, with the ability to multi-task.
- Ability to manage people and the work performed by others.
- Ability to communicate effectively, both verbally and in writing.
- Excellent interpersonal skills (including on two-way radio).
- Work in a professional manner. A Foreman may be visible to Port tenants and the traveling public, and the workers need to represent the Port well while working.
- Ability to understand and follow oral and written instructions, and maintain attention to detail while working.
- Ability to work independently, but also within a team environment. A Foreman needs to be able to work with other crafts (such as Electricians, Operating Engineers, and Auto Mechanics, and Carpenters), and coordinate work among the various crafts.
- Working knowledge of Windows-based computers and related accessories. Working knowledge of time tracking software, keyboarding and data input skills, and knowledge of electronic mail software.





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Machinery, Tools, Equipment, Personal Protective Equipment:

Foremen use a variety of items to accomplish their assigned tasks:

- Windows-based desktop and laptop computers. Various computer software, such as Microsoft Office, project management software (Maximo), and software specific to programming, testing and maintaining electronic control equipment.
- Hand tools, including screwdrivers, wrenches, pliers, wire cutters, tape measures, utility knives, and hammers/mallets.
- Power tools, including drills, saws, and drill presses.
- Electronic instruments, assemblies, and components, and computer and network-related components.
- Electronic testing tools, meters, and instruments.
- Extension cords. Work lights. Flashlights.
- Toolboxes, buckets, or bags.
- Spools of wire.
- Soldering equipment. Clamps. Vises.
- 2-way radios.
- Ladders: step, freestanding, and extension. Man lifts/scissor lifts.
- Hand trucks.
- General office equipment, such as desk, workstation/workbench, chair, stool, multi-line phones, copy and fax machines.
- General office supplies, including pens, pencils, folders, paper, stapler, scissors, paper clips, etc.



A Foreman is required to wear approved safety shoes/boots at all times. If working in a construction zone, workers are required to wear a hardhat, gloves, and eye protection. Ear protection is also used when necessary. Automated Control Specialists may also wear gloves or kneepads to perform their regular work.



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Education / Training:

Automated Control Specialists, including the Foremen, are represented by the IBEW – Local 46.

The Foreman would be a Journeyman-level Electronic Technician with significant experience in a variety of electronic, electrical, and computer systems in an airport environment. Preferred training includes manufacturers' certifications, and a degree from an accredited Electronic Technician program. When available, Foremen positions are only posted internally, and candidates are chosen from the existing pool of Automated Control Specialists.

Training and or enough hands-on experience with computers to have a working knowledge of Windows-based computers and related accessories, time tracking software, keyboarding, data entry, electronic mail software.

The Foreman must complete the Front Line Supervisor Training as a Port of Seattle requirement. This training is offered once a year and must be completed during the first year as a Foreman. Additional training includes, but is not limited to, AOA training (which allows workers to drive on the airfield), Asbestos Awareness, and forklift certifications.

A valid Washington State Driver's License is required in this position, as is the ability to pass a required FAA background check.

Per the Dictionary of Occupational Titles (DOT):

828.161-010 Supervisor, Electronics Systems Maintenance

Specific Vocational Preparation: 8 (from four to ten years)

003.161-014 Electronics Technician SVP: 7 (From two to four years)

828.261-022 Electronics Mechanic SVP: 7 (From two to four years)



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COGNITIVE AND BEHAVIORAL ELEMENTS/DEMANDS

Frequency Definitions:	
Continuously = Occurs 66-100% of the time.	Occasionally = Occurs 1-33% of the time
Frequently = Occurs 33-66% of the time.	Rarely = May occur less than 1% of the time.
Never = Does not ever occur.	
Comprehension	
Articulating and comprehending information in conversations.	Continuously
Reading, comprehending, and using written materials.	Frequently
Understanding and solving problems involving math and using the results.	Occasionally
Using technology/instruments/tools & information systems.	Continuously
Working with two and three dimensional formats.	Frequently
Remembering	
Remembering spoken instructions.	Continuously
Remembering written instructions.	Frequently
Remembering visual information.	Continuously
Recalling information incidental to task at hand.	Continuously
Memorizing facts or sequences.	Frequently
Remembering simple instructions.	Continuously
Remembering detailed instructions.	Continuously
Learning & Processing	
Effectively learning and mastering information from classroom training.	Occasionally
Effectively learning and mastering information from on-the-job training.	Continuously
Learning from past directions, observations, and/or mistakes.	Continuously
Using common sense in routine decision making.	Continuously
Recognizing and anticipating potential hazards and taking precautions.	Continuously
Thinking critically and making sound decisions.	Continuously
Integrating ideas and data for complex decisions.	Continuously
Determining and following precise sequences.	Frequently
Coordinating and compiling data and information.	Frequently
Analyzing, synthesizing data and information.	Frequently
Tasking and Planning	
Performing repetitive or short-cycle work.	Frequently
Working under specific instructions.	Continuously
Completing complex tasks.	Frequently
Directing, controlling, or planning for others as necessary for basic tasks.	Continuously
Directing, controlling, or planning for others as necessary for complex tasks.	Frequently
Multi-tasking.	Continuously
Planning, prioritizing, and structuring daily activities.	Continuously



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Use Appropriate Behavior for Professional Work Environment	
Receiving criticism and accepting limits appropriately.	Frequently
Maintaining emotional control and organization under increased stress.	Continuously
Maintaining socially appropriate affect, temperament, and behavior.	Continuously
Monitoring own quality of performance and altering behaviors to correct mistakes or improve outcome.	Continuously
Working independently and/or unsupervised.	Continuously
Adapting to frequent interruptions, changes in priorities, or changes in work location.	Continuously
Responding effectively to emergency situations.	Occasionally

Frequency Designations: Required Beneficial Not Necessary	
Maintaining Attendance and An Assigned Work Schedule	
Maintaining predictable and reliable attendance each work shift.	Required
Being punctual.	Required
Taking rest periods at set times or only at times determined by breaks in job responsibilities.	Not Necessary
Adjusting to a flexible schedule of work days and or shifts.	Beneficial



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PHYSICAL DEMANDS

N/A: Not Applicable

S: Seldom (1-10% of the time)

O: Occasional (10-30% of the time)

STRENGTH: Sedentary Light Medium Heavy Very Heavy

F: Frequent (30%-70% of the time)

C: Constant (Over 70% of the time)

WNL: Within Normal Limits (talking, hearing, etc.)

Frequency Comments

Sitting	F	While performing administrative duties, driving vehicle, attending meetings, working at a workbench/workstation, working on a computer, repairing equipment, programming equipment, testing equipment, and sitting on a low rolling stool or floor while working on train car.
Standing	O	Interchange with Walking. Frequency depends on assigned tasks. While viewing/inspecting/accessing/installing/ repairing/replacing equipment. Talking with co-workers, supervisors, and others. May be standing on a ladder.
Walking	F	Interchange with Sitting and Standing. Frequency depends on assigned tasks. While in shop areas, moving between shops (there are 2: north and south), traveling to equipment locations, walking between a vehicle and work areas, and inspecting/ installing/repairing/replacing equipment. Walking may be over concrete, asphalt, tile, or over potentially slippery surfaces.
Lifting (up to 10 pounds)	F	Lifting parts, system components and accessories, supplies, hand and power tools; rolls/spools of wire (500' reel of wire is approx. 5-10 pounds), 2-way radio, laptop computer, paperwork, step ladder, drawings/blueprints, tools, up to 2 reams of copy paper, binders, schematic drawings, and manuals.
Lifting (10 to 20 pounds)	S-O	Lifting parts, system components and accessories, laptop bag with laptop, boxes of equipment and accessories, power tools, electronic testing equipment, small bag/box/bucket holding selected tools (15-20 pounds), and ladders.
Lifting (20 to 40 pounds)	S	Lifting equipment components and assemblies, boxes of electronic equipment and accessories, larger bag/box/bucket of tools (up to 40 lbs.), larger electronic testing equipment (largest portable units weigh approx. 35 pounds), rolls/spools of wire (2,500' reel of wire is approx. 35 pounds). Note: In the train shop, lifts, hoists, and other devices are available to limit the amount of lifting that is necessary.
Carrying (up to 10 pounds)	F	Carrying parts, system components and accessories, supplies, hand and power tools; rolls/spools of wire (500' reel of wire is approx. 5-10 pounds), 2-way radio, laptop computer, paperwork, step ladder, drawings/blueprints, tools, up to 2 reams of copy paper, binders, schematic drawings, and manuals.
Carrying (10 to 20 pounds)	S-O	Carrying parts, system components and accessories, laptop bag with laptop, boxes of equipment and accessories, power tools, electronic testing equipment, small bag/box/bucket holding selected tools (15-20 pounds), and ladders.



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Carrying (20 to 40 pounds)	S	Carrying equipment components and assemblies, boxes of electronic equipment and accessories, larger bag/box/bucket of tools (up to 40 pounds), larger electronic testing equipment (largest portable units weigh approx. 35 pounds), rolls/spools of wire (2,500' reel of wire is approx. 35 pounds). Note: In the train shop, wheeled carts, lifts, hoists, and other devices are available to limit the amount of carrying that is necessary. As possible, workers can to drive vehicles as close as possible to a work area to limit the amount of carrying.
Pushing/Pulling (Estimated force up to 15 lbs.)	O	While opening doors, opening/closing file drawers, obtaining/replacing binders/files/parts/components from shelves or drawers, removing or replacing system components using hand and power tools, pulling wire, opening and closing component covers, maneuvering wheeled carts.
Pushing/Pulling (Estimated force 15 to 40 lbs.)	S	Potentially while removing or replacing system components, exerting force on a tool, or opening a train car door without power.
Climbing Stairs/Ladders	S-O	Frequency depends on assigned tasks. Stairs are used to reach the “pits” under the train cars in the train shops. Stairs are used to move between the north and south shops. Stairs are used to gain access to the supplies/parts storage lofts. Workers may encounter stairs in the terminal. Workers climb ladders as necessary to reach work areas (ladders are generally freestanding, ranging from stepstools to 10’ ladders). Workers may also climb and work from a freestanding work platform/scaffolding.
Working at Heights/Balancing	S-O	While using ladders, work platforms/scaffolding, or working near the edge of the “pits” used to work underneath the train cars.
Bending at Waist	F	While working at desk, accessing, inspecting, or repairing items at or below waist level, reaching for items at workbench/workstation, gathering tools, equipment, supplies, and manuals below waist level, programming and testing equipment while standing, and entering/exiting vehicles.
Bending Neck	F	While working at desk, using desktop and laptop computers, reviewing paperwork and other written documentation, obtaining files or binders, or inspecting/repairing/installing equipment.
Twisting at Waist	S	While obtaining/moving items while seated at desk or workbench/workstation, maneuvering/reaching to gain access to equipment or components to install or replace, conducting inspections, and entering/exiting vehicles.
Crouching/Kneeling	S	When working on equipment or components below waist level, viewing/inspecting/accessing items at or below waist level, and gathering parts, equipment, and supplies stored below waist level.
Crawling	S	Rare. May be necessary when working on equipment or items below waist level.
Stooping	S	While inspecting/accessing/removing/replacing parts in hard to access areas, and gathering parts/supplies in the storage lofts.



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Reaching (To shoulder level)	F	While obtaining/moving items while seated at desk or workbench/workstation, inspecting/installing/repairing/ replacing components and equipment. Pulling wire. Testing and repairing equipment at workstation/work bench. Gathering parts, equipment, and supplies stored from floor to shoulder level. Obtaining documents/manuals from file cabinets or shelves. Picking up telephone receiver or radio.
Reaching (Over the shoulder)	S-O	Frequency will depend on assigned tasks. Inspecting/installing/ repairing/replacing components and equipment over shoulder level. Gathering parts and supplies stored above shoulder level. Note: Workers try to position themselves where the work is primarily performed between shoulder and waist heights.
Repetitive Motion	N/A	The variety of tasks assigned to the Foremen minimizes repetitive motion.
Handling/Grasping	F	60 % Pinch Grasp 40 % Whole Hand Grasp
Fine Finger Manipulation	F	While sorting paperwork, opening boxes of equipment and accessories, using telephone, using keys, pushing buttons on equipment, connecting cables, using tools and testing equipment, installing/removing/repairing/replacing electronic equipment and components. Operating triggers on power tools and using controls on shop tools. Writing.
Keyboarding	F	While writing reports, creating and responding to electronic mail, researching items on the internet, placing orders for equipment and accessories, using Maximo to enter time, check entered time, or check on work orders, programming controllers, computer network, and other electronic equipment, and performing tests.
Writing	O	Taking notes in meetings and while on phone/radio, noting action items, marking changes on documents, and documenting completed work tasks.
Driving	S	While driving electric cart/scooter, or other vehicle to and from work areas. Potentially driving/maneuvering train cars into repair shop area and positioning cars over repair “pit.”
Foot Controls	S	While driving.
Talking	F	Communicating with supervisors, co-workers, and potentially the public.
Hearing	C	Communicating with supervisors, co-workers, and potentially the public. Listening for radio traffic and hazards.
Seeing	C	Visual abilities would be considered important in this position.
Normal Job Site Hazards	F	Working around electricity (risk of electrocution from train power), working near moving machinery and vehicles, working at heights (ladders and near open “pits” in train shops), falling objects, striking head on overhead objects, pinch hazards, sharp tools, slippery walking surfaces, sharp tools, fumes, dust, noise, odors, and vibrations.



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Claimant:
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Expected Environmental Conditions	C	A majority of the work completed by the Foreman is performed inside buildings. This work may be in a shop office, at a shop workbench/workstation, or in a shop environment. A Foreman may also work in the tunnels between the airport terminals. Worker may be exposed to noisy environments, dust, fumes, and odors. Workers may be exposed to temperature changes, as generally work areas are not temperature controlled.
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The above job analysis represents the requirements of a specific job based on personal observations, discussions with employer representatives, and/or workers. On occasion, practicality and feasibility prevent the direct observation and/or gathering of objective quantifiable data. For this reason, a "best estimate" may have been used when reporting physical demand frequencies.

Analysis was done on the job site? Yes No

Job Analysis Reviewed By: Allen Tygesen

Completed by Vocational Provider Brice York, B.A., CDMS

Date **January 25, 2019** Signature of Vocational Provider 



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FOR PHYSICIAN’S/EVALUATOR’S USE ONLY

- The injured worker can perform the physical activities described in the job analysis and can return to work on _____
- The injured worker can perform the physical activities described in the job analysis on a part-time basis for _____ hours per day. The worker can be expected to progress to regular duties in _____ weeks/months.
- The injured worker can perform the described job, but only with the modifications/ restrictions in the attached report and/or listed below. These modifications/restrictions are (check one):
 - Temporary for _____ weeks _____ months
 - Permanent
- The injured worker cannot perform the physical activities described in the job analysis based on the physical limitations in the attached report and/or listed below. These limitations are (check one):
 - Temporary for _____ weeks _____ months
 - Permanent

COMMENTS:

Date _____ Physician’s/Evaluator’s Signature _____

Physician’s/Evaluator’s Name Printed _____

PLEASE RETURN COMPLETED FORM VIA FACSIMILE TO:

Port of Seattle Employee Health & Safety Department at (206) 787-3406