



Bock Consulting

Job Analysis

Job Title	<u>Operating Engineer – Conveyance Systems and Loading Bridges (AVM)</u>	Worker	_____
DOT Number	<u>950.382-026</u>	Claim Number	_____
Employer	<u>Port of Seattle</u>	Employer Phone #	<u>(206) 787-3000</u>
Employer Contact	<u>Juan Martell</u>	Date of Analysis	<u>March 10, 2020</u>

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

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 an individual working as an Operating Engineer – Conveyance Systems and Loading Bridges for Aviation Maintenance.

Essential Functions:

Operating Engineers specializing in conveyance systems and loading bridges are responsible for:

- the operation and maintenance of the approximately 10 miles of baggage handling systems used to route passengers' luggage throughout the airport.
- the 70+ loading bridges at the airport that allow passengers to board and disembark airplanes at the Sea-Tac Airport gates.
- the overhead doors and security gates on the airport property.



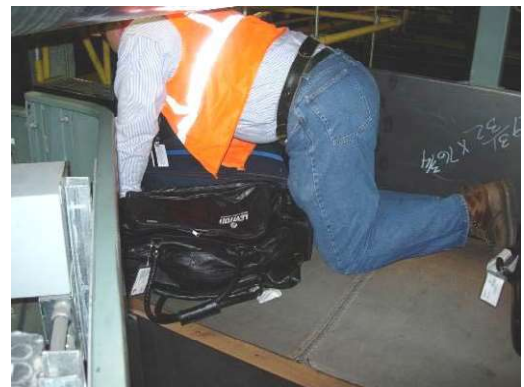


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Operating Engineers are scheduled 7 days a week and around the clock at Sea-Tac Airport. Workers are scheduled in three shifts (day, swing, and graveyard). Workers on the day shift generally focus on ensuring equipment is functioning properly and addressing any operational challenges. Workers on the graveyard shift generally focus more on maintenance tasks when passenger volumes are low.

Tasks Assigned to Operating Engineers

- Prior to each shift, meet as a team to discuss current issues and obtain daily assignments from the Foreman/supervisor. Preventive maintenance checklists may be provided to document the completion of the preventive maintenance duties.
- Conduct inspections of assigned systems and equipment.
- Respond to conveyance system and loading bridge maintenance calls received from the airlines. Airlines call a central dispatching office, and the service calls are then relayed to the Operating Engineers. Rotating team members are specifically assigned to respond to conveyance system maintenance calls. If another call is received before the first issue is resolved, the first responder may call a second responder if necessary. The overall goal is to respond to every call in less than 5 minutes.
- Clear luggage jams in the conveyor systems. Workers may clear 25 to 50 jams per shift. This task may include simply pushing or pulling baggage apart or, if related to a more serious problem, workers may have to lift and carry luggage to another conveyor until the repair or maintenance issue can be addressed (such as the replacement of a conveyor motor that is no longer working).
- Maintain assigned equipment. This may include emergency maintenance (“EM”) issues, corrective maintenance (“CM”) concerns, or preventive maintenance (“PM”) projects.
 - Lubricate motors and other moving parts and equipment.
 - Remove and/or replace damaged or broken motors, bearings, conveyor belts, and other equipment.
 - Weld equipment as necessary.
 - Repair/replace torn or damaged overhead doors (generally struck by moving vehicles).
 - Replace overhead door springs.
- Fabricate/machine a variety of replacement parts used in the systems and equipment maintained by the





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Operating Engineers.

- Construct replacement conveyor belts from large spools of belt material. Some belts can be up to 150 feet long.
- Use shop tools to turn and mill replacement parts to be used in the conveyor systems. Drill and tap machined parts as needed.
- Build replacement urethane wheels for passenger baggage carousels.
- Cut metal by operating cut-all saw (metal can be up to lengths of 35 feet).
- Weld materials using welding equipment.
- Repair and/or rebuild reusable equipment as needed.
 - Rebuild motors (conveyor and gate motors).
 - Rebuild gearboxes.
 - Install new bearings in wheels or pulleys.
 - Clean metal parts with parts washer or grinder/buffer.
- Request and gather parts, supplies, and/or materials needed for projects.
- Prepare and/or review job hazard analysis for each project. Review job plan. Ensure work is performed in a safe manner.
- Enter time and work tasks by work order on a daily basis into computer maintenance management software (CCMS) (Maximo).
- Send and respond to electronic mails.
- Complete all required forms and documents.
- Attend periodic meetings during which training is provided and important safety issues are





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discussed.

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

Necessary skills and abilities include:

- Having the ability to identify and trouble-shoot an issue quickly, identify the best method(s) to address an issue, and correctly complete the identified task.
- Having the physical abilities to perform all of the assigned tasks.
- Having the skills to complete the assigned task(s), using all of the various types of tools and equipment, in a safe manner.
- Being able to follow directions closely, and being detail oriented.
- Being able to work independently, but also within a team environment. Not only do Operating Engineers have to be able to work with other Operating Engineers, but Operating Engineers work in position considered a “lead craft.” Therefore, Operating Engineers need to be able to work with other crafts (such as electricians and electronic technicians) and coordinate work among various types of crafts.
- Ability to communicate effectively, both verbally and in writing.
- Excellent interpersonal skills (including on radio).
- Being able to work in various temperatures and potentially work exposed to various kinds of weather.
- Working knowledge of Windows-based computers, related accessories, time tracking software, keyboarding, data input skills, and electronic mail software.





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Machinery, Tools, Equipment, Personal Protective Equipment:

The Port provides all tools and equipment necessary to perform the tasks assigned to the Operating Engineers (no personal tools are allowed).

- Hand tools, including wrenches, crowbars, pinch bars, chisels, vice grips, screwdrivers, tape measures, utility knives, and hammers.
- Power tools, including drills, chop saws, grinders, reciprocating saws, roto-hammers,
- Grease guns, grease, and other lubricants.
- Metal saws, lathes, mills, drill press, parts washer, and other shop tools.
- 2-way radio.
- Work tables.
- MIG, TIG, and stick welding equipment.
- Lacing pin machine (used to add connectors to newly constructed conveyor belts).
- Ladders: step, self-supporting, and extension.
- Man lifts/snorkel lifts/scissor lifts.
- Forklifts. Pallet jacks.
- Hand trucks. Wheeled carts.
- Tool boxes or tool buckets.
- Portable generators.
- Electric carts/scooters. Work trucks.
- Chain hoists. Overhead hoists. Comealongs.
- Engine lift/cherry picker.
- Chains, straps, and ropes.
- Fall protection.
- Windows-based computers (used to track work time by project, and receive and send electronic mails).



Workers are required to wear safety vests and approved safety shoes at all times. Ear protection is required when working in the Airport Operations Area (“AOA”), and other times as necessary. Operating Engineers may also wear gloves, kneepads, and fall arrest harnesses as required. When working in a construction zone, workers are required to wear a hardhat and eye protection.



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Education / Training:

Operating Engineers are represented by the Operating Engineers Union (Local 302).

The Aviation Maintenance group seeks employees with at least 5 years of industrial experience (which may include apprenticeship training and/or vocational schooling).

New hires are generally assigned to shadow more experienced workers. During the first 800 hours of employment, a new worker will generally work 30 days on each shift to gain a better understanding of the types of tasks are assigned to the crews on each shift.

Additional training includes, but is not limited to, AOA training (which allows workers to drive on the airfield), Electrical Panel Safety, Hazardous Materials Management, Asbestos Awareness, forklift, power truck, and pallet jack certifications. A valid Washington State Driver's License is required in this position, as is the ability to pass a required FAA background check.

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

Per the Dictionary of Occupational Titles (DOT): 950.382-026 Maintenance Engineer

Specific Vocational Preparation (SVP): 7 (From two to four years)





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High Speed Overhead Door

Security Gate

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.	Occasionally
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.	Occasionally
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.	Frequently
Integrating ideas and data for complex decisions.	Occasionally
Determining and following precise sequences.	Frequently
Coordinating and compiling data and information.	Occasionally
Analyzing, synthesizing data and information.	Occasionally
Tasking and Planning	
Performing repetitive or short-cycle work.	Continuously
Working under specific instructions.	Continuously
Completing complex tasks.	Occasionally
Directing, controlling, or planning for others as necessary for basic tasks.	Occasionally
Directing, controlling, or planning for others as necessary for complex tasks.	Occasionally
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.	Beneficial
Being punctual.	Beneficial
Taking rest periods at set times or only at times determined by breaks in job responsibilities.	Required
Adjusting to a flexible schedule of work days and/or shifts.	Required



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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

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

C: Constant (Over 70% of the time)

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

Medium Heavy Very Heavy

	Frequency	Comments
Sitting	S-O	Depends on assigned tasks and assigned work areas. Driving cart/scooter, forklift, or work truck to work area.
Standing	F	Work is generally accomplished alternating between standing and walking.
Walking	F	Work is generally accomplished alternating between standing and walking.
Lifting (up to 25 pounds)	F	Lifting tools, smaller parts, and paperwork. Single conveyor shaft (25 lbs.). 2-way radio and radio speaker/microphone. Safety equipment.
Lifting (25 to 50 pounds)	O-F	Lifting toolboxes or tool buckets (up to 50 lbs.), equipment components and parts, 1.5 hp motor without brake clutch assembly (48 lbs.), gearboxes (50 lbs.), stair treads/steps (30 lbs.), 20' length of metal used to create handrails (35 lbs.), rollers used in telescoping loading bridge sections (50 lbs.). Periodically the fluids in the loading bridge gearboxes are drained and replaced (the 5 gallon bucket containing the flushed fluid weighs and estimated 45 lbs.).
Lifting (50 to 100 pounds)	O	Lifting luggage to clear jams (often up to 70 lbs.), equipment components and parts, replacement conveyor belts (50 to 100 lbs.), 1.5 hp motor with brake clutch assembly, long arm of baggage pusher assembly (70 lbs.), belt lacing machine (58 lbs.), hydraulic pumps (approx. 90 lbs). and metal bars to carry to saw (100 lb. 20-foot pieces generally carried by 2 workers).
Lifting (100 to 160 pounds)	N/A -S	Lifting pieces of shaped metal/angle iron to carry to a saw (200 lb. 20-foot pieces generally carried by 2 workers). Lifting short arm of baggage pusher assembly (est. 150 lbs.), and 3 hp motor with brake clutch unit (160 lbs.). NOTE: Many of the parts and pieces of equipment maintained by the Operating Engineers are heavy (motors, gearboxes, pumps). Therefore, the workers use hoists, lifts, or other mechanical devices to lift and move heavy parts and equipment when possible. When manually lifting items, workers should ensure that they are using proper lifting techniques, and ask for assistance when needed. When another worker is available, an object can be lifted by two people.
Carrying (up to 25 pounds)	F	Carrying tools, smaller parts, and paperwork. Single conveyor shaft (25 lbs.). 2-way radio. Safety equipment.



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Carrying (25 to 100 pounds)	S-O	When possible, workers use wheeled carts, hand trucks, forklifts, overhead hoists, engine lift, cherry picker, or crane to move materials and equipment around in the shop or on a job site. As necessary, carrying luggage to other conveyors when one conveyor is broken/ jammed (often up to 70 lbs.). Toolboxes or tool buckets (up to 50 lbs.), equipment components and parts, 1.5 hp motor without brake clutch assembly (48 lbs.), gearboxes (50 lbs.), stair treads/steps (30 lbs.), 20' length of metal used to create handrails (35 lbs.), rollers used in telescoping loading bridge sections (50 lbs.), replacement conveyor belts (50 to 100 lbs.), long arm of baggage pusher assembly (70 lbs.), and metal bars to a saw (100 lb. 20-foot pieces generally carried by 2 workers). Periodically the fluids in the loading bridge gearboxes are drained and replaced (the 5 gallon bucket containing the flushed fluid weighs and estimated 45 lbs.). When another worker is available, an object can be carried by two people.
Carrying (100 to 160 pounds)	N/A-S	When possible, workers use wheeled carts, hand trucks, forklifts, overhead hoists, engine lift, cherry picker, or crane to move materials and equipment around in the shop or on a job site. Carrying short arm of baggage pusher assembly (est. 150 lbs.), 3 hp motor with brake clutch unit (160 lbs.), or pieces of shaped metal/angle iron to carry to a saw (200 lb. 20-foot pieces generally carried by 2 workers). When another worker is available, an object can be carried by two people.
Pushing/Pulling (Force up to 20 pounds)	F	Opening/closing drawers, cabinet doors, drawers containing tools, parts, and hardware, gathering items from shelves, using tools, and moving wheeled carts or wheeled equipment.
Pushing/Pulling (Estimated force 20 to 50 pounds)	O	Using tools, clearing luggage jams, pulling bulk conveyor belt material from large rolls, and using lacing pin machine to add connectors to newly constructed conveyor belts.
Climbing Stairs/Ladders	O	Ladders and short sets of stairs are often used to reach and move in and around areas of the conveyor systems. Many of the conveyor systems are suspended overhead. While working on the loading bridges freestanding ladders, ladders attached to structures and trucks, and stairs are used to enter and access areas of the loading bridges. Man lifts/snorkel lifts/scissor lifts are used as work platforms. Workers may use the elevators in the terminal building to move between floors. NOTE: If it is not possible to reach a work area using a manlift, it may be necessary for a worker to carry tools, parts, or pieces of equipment up ladders and/or stairs to reach the work area(s). Some of the items (such as tool buckets, motors, and conveyor belts) may weigh a substantial amount.
Working at Heights/Balancing	O-F	Depending on the specifically assigned tasks. Workers use ladders and man lifts to reach work areas. Many of the conveyor systems are suspended overhead, and work may be performed on top of the loading bridges. NOTE: Fall protection must be worn when working at heights.
Bending at Waist	F	Entering vehicles or man lifts, inspecting equipment, performing work tasks, moving in and around equipment, gathering parts and items at or below waist level.



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Bending Neck	C	In a majority of the tasks accomplished by Operating Engineers, the worker's ability to move their neck would be considered important.
Twisting at Waist	O-F	Moving in, around and through equipment, particularly the conveyor systems. Clearing luggage jams, and moving luggage from one conveyor system to another if a conveyor needs repair. Note: workers can minimize the amount of twisting by moving their feet or positioning work correctly while working.
Crouching/Kneeling	O	When working on equipment or items below waist level, or gathering parts and supplies stored below waist level. When clearing jams or moving baggage on or from the conveyor belts. Once a quarter, the Operating Engineers are tasked with cleaning the gutters (the outside bottom edges inside the loading bridges where the sections of the loading bridges extend) which is best accomplished while kneeling.
Crawling	S	May be necessary when working on equipment or items below waist level. When clearing jams or moving baggage on or from the conveyor belts. Working inside the passenger baggage claim carousels, or cleaning inside gutters of the loading bridges.
Stooping	S-O	Depending on the specifically assigned tasks. Moving in, around and through conveyor systems. Many conveyance system passageways are only 4 feet high. NOTE: It may be necessary for a worker to carry tools, parts, or equipment while stooping to reach specific work areas.
Reaching (Floor to Waist)	O	Gathering tools, performing work tasks, and gathering parts and supplies below waist level.
Reaching (Waist to Shoulder)	F	Gathering tools, performing work tasks, using shop tools, and gathering parts and supplies. Clearing luggage jams.
Reaching (Over the Shoulder)	O	Performing work tasks, and gathering parts and supplies.
Driving	O	Driving electric cart/scooter, forklift, work truck, or other vehicle.
Foot Controls	O	While driving.
Repetitive Motion	N/A	The variety of tasks assigned to Operating Engineers minimizes repetitive motions.
Handling/Grasping	F	40 % Pinch Grasp 60 % Whole Hand Grasp
Fine Finger Manipulation	F	Operating triggers on power tools, using controls on shop tools, operating welding equipment, lubricating machinery, writing, and using computer mouse.
Keyboarding	S	Entering time and work performed on a daily basis, and creating and responding to electronic mail.
Writing	S	Taking notes, and documenting completed preventative maintenance items (checklists).
Talking	F	Communicating with supervisors, co-workers, and public.
Hearing	C	Communicating with supervisors, co-workers, and public. Listening for radio traffic, sounds of malfunctioning machinery, and potential hazards.
Seeing	C	With or without correction.
Normal Job Site Hazards	C	Moving machinery and conveyor belts, moving vehicles (many pulling baggage carts), working at heights, heavy parts, equipment, and baggage, confined spaces, electrical current, overhead doors, noise (conveyor systems and other machinery, and airplanes), dust, and fumes.



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Expected Environmental Conditions	C	<p>A majority of the work completed by the Operating Engineers is performed inside (baggage handling conveyor areas, workshop, and other buildings on the airport grounds). Operating Engineers may be exposed to external weather conditions when working on external/overhead doors, security gates on the airport property, and walking to a vehicle.</p> <p>Workers may be exposed to temperature changes (generally work areas are not temperature controlled, and may be impacted by outside temperatures), noise, dust, and fumes.</p>
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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: Juan Martell

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

Date March 10, 2020 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