



# Bock Consulting

## Job Analysis

Job Title	Heavy Equipment Operator (MM)	Worker	_____
DOT Number	859.683-010	Claim Number	_____
Employer	Port of Seattle	Employer Phone #	(206) 787-3000
Employer Contact	Shane Shauf	Date of Analysis	7/16/10; 6/11; 5/3/18

- Job of Injury   
 Transferable   
 New Job   
 8 Hours Per Day   
 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 Maritime Division owns and operates approximately 1,200 acres of moorage, cargo-related, and cruise ship facilities. The Maritime Division employs a maintenance staff, which is responsible for general facility upkeep, pier and moorage system repairs, and utility maintenance.

This job analysis was developed for a Heavy Equipment Operator working for Marine Maintenance.

### Tasks Assigned to Heavy Equipment Operators

Heavy Equipment Operators generally perform tasks involving the operation of power/ motorized construction equipment, such as backhoes, boring equipment, sweepers, chippers, compactors, compressors, hoists, lifts, pavement breakers, asphalt machines, rollers, and trenchers to excavate, dig, and move earth, spread, apply, or remove various materials, or lift and move materials. Heavy Equipment Operators may perform tasks as part of preventative maintenance projects, planned construction projects, or on an emergency basis in response to a specific event.



Heavy Equipment Operators primarily work during the day shift, although periodically projects may demand work during other shifts.



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Tasks Assigned to Heavy Equipment Operators

- Meet/connect with Crew Chief on a daily basis.
- Obtain, read and review work orders and/or requests for heavy equipment tasks.
- Request equipment and/or supplies needed for projects.
- Prepare and/or review site specific safety plan for each project. Review job plan. Ensure work is performed in a safe manner.
- Perform visual safety inspection of vehicle, check and correct fluid levels and tire pressure, refuel vehicles, maintain vehicle cleanliness and perform pre-trip inspections.
- Operate motorized equipment such as grader, backhoe, loader, compactor, bulldozer, excavator, scraper, roller, forklift, paving machine, sweeper and mower. Operate equipment to grade, spread, sweep, remove, mow, dig, ditch, build, cut, load, clean, lift, pave or apply various materials.
- Determine types and quantities of materials needed.
- Work with site foremen, project managers, other tradesmen, and other personnel to understand and coordinate work requirements and activities. Assist with monitoring, controlling, and directing activities at job site.
- Ensure underground utilities and other obstacles have been located and identified, if digging or moving earth.
- Identify potentially hazardous or unacceptable materials at job site and coordinate proper disposal.
- Stockpile and organize road construction materials.
- Respond to on-site accidents, emergencies and hazardous spills to assess immediate concerns and respond to them with equipment.
- Coordinate and/or complete special projects.
- Assist with unloading or loading equipment for transport to another location.
- Enter time by work order on a daily basis into job tracking system (Maximo).
- Enter description of work completed in work log
- Send and respond to electronic mails.
- Attend periodic meetings during which training is provided and important safety issues are discussed.
- Assist other crafts as requested.
- Potentially supervise apprentices or mentor students.
- Complete all required forms and documents.





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Worker's Skills and Traits

- Good technical skill in operating a variety of mobile equipment. Good eyesight, hand-eye coordination, and manual dexterity.
- Knowledge of safe operating procedures of various types of equipment. Ability to apply safety principles and practices while working.
- Familiarity with and skill in using hand tools.
- Knowledge of methods, materials, tools, and equipment used in the construction and/or maintenance fields.
- Knowledge of federal, state, county and local environmental regulations related to assigned work.
- Ability to work independently, but also within a team, as required.
- Ability to follow directions closely and be detail oriented while completing tasks.
- Having the skills to identify the best way to accomplish a task, and complete the assigned task(s) in a timely and efficient manner.
- Knowledge of driving laws on roadways and surrounding street systems.
- Able to work in a safe manner in any kind of weather.
- Must possess good communication skills (oral and written).
- Knowledge of care of tools and equipment.
- 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.



Machinery, Tools, Equipment, Personal Protective Equipment

- Backhoes, sweepers, industrial vacuum trucks, chippers, compactors, pavement breakers, asphalt machines, rollers, tractors, and trenchers.
- Port work truck or other vehicle.
- Compressors, hoists, lifts, and CCTV equipment.
- Two-way radio.
- Various hand tools/wrenches.
- Shovels and brooms.
- Cleaning equipment.
- Potentially chain and/or straps (to secure equipment to a trailer).
- Fuel tank and pump.



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- Personal protective equipment: safety vest, approved safety boots, and hard hats. May also use eye and ear protection, gloves, and rain gear.
- Computer, computer accessories, and project management software (Maximo).
- General office equipment, such as fax machine and telephones.
- General office supplies, such as pens/pencils, notepads, binders, and copy paper.

**Education / Training**

Operators are represented by the International Union of Operating Engineers Local 302. In general, Operators are Journeymen level Operating Engineers that have successfully completed an apprenticeship program.

Journey-level status is typically achieved by completing a three to four-year apprenticeship. General qualifications for an apprenticeship include: worker must be eighteen (18) years of age, have a high school diploma or GED at time of apprenticeship application, must have a valid Washington State Drivers license, passing scores on math and writing tests, and have the physical abilities to perform the tasks and duties assigned. Journey-level status can also be earned by having two (2) years of specific trade-related work experience.



Must have a Washington State Driver's License, and Commercial Driver's License (Class B) with air-brake endorsement.

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.

**Per the Dictionary of Occupational Titles (DOT): 859.683-010 Heavy Equipment Operator**

Specific Vocational Preparation (SVP): 6 (From one to two years)





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**COGNITIVE AND BEHAVIORAL ELEMENTS/DEMANDS**

The psychological and cognitive demands of this position vary depending on assignments and duties.

Frequency Definitions:		
<b>Continuously</b> = Occurs 66-100% of the time.	<b>Occasionally</b> = Occurs 1-33% of the time	
<b>Frequently</b> = Occurs 33-66% of the time.	<b>Rarely</b> = May occur less than 1% of the time.	
<b>Never</b> = Does not ever occur.		
<b>Comprehension</b>		
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
<b>Remembering</b>		
Remembering spoken instructions.		Continuously
Remembering written instructions.		Occasionally
Remembering visual information.		Continuously
Recalling information incidental to task at hand.		Continuously
Memorizing facts or sequences.		Occasionally
Remembering simple instructions.		Continuously
Remembering detailed instructions.		Continuously
<b>Learning &amp; Processing</b>		
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.		Occasionally
Determining and following precise sequences.		Frequently
Coordinating and compiling data and information.		Occasionally
Analyzing, synthesizing data and information.		Occasionally
<b>Tasking and Planning</b>		
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.		Rarely
Directing, controlling, or planning for others as necessary for complex tasks.		Rarely
Multi-tasking.		Occasionally
Planning, prioritizing, and structuring daily activities.		Occasionally



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<b>Use Appropriate Behavior for Professional Work Environment</b>	
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.	Frequently
Responding effectively to emergency situations.	Rarely

Frequency Designations: <b>Required</b> <b>Beneficial</b> <b>Not Necessary</b>	
<b>Maintaining Attendance and An Assigned Work Schedule</b>	
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.	Not Necessary
Adjusting to a flexible schedule of work days and/or shifts.	Beneficial



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**PHYSICAL DEMANDS**

Depending on the specific equipment being operated, Operators control the equipment using steering wheels, levers, joy sticks, foot controls, switches, and dials.

**NOTE: According to the Operators interviewed, this position can be self-managed to a point where the physical demands on an Operator are relatively limited.**

**N/A:** Not Applicable  
**S:** Seldom (1-10% of the time)  
**O:** Occasional (10-30% of the time)  
**F:** Frequent (30%-70% of the time)  
**C:** Constant (Over 70% of the time)  
**WNL:** Within Normal Limits (talking, hearing, etc.)

STRENGTH:  Sedentary  Light  Medium  Heavy  Very Heavy

Frequency Comments

Sitting	<b>C</b>	While on a vehicle traveling to a work site, or operating machinery/equipment. May sit for up to 2 hours at a time, for up to 8 hours total during a work shift.
Standing	<b>O</b>	While inspecting equipment, assisting with unloading/loading equipment, talking with other individuals, or operating specific pieces of equipment (asphalt machines). Standing may be on metal, dirt, gravel, cement, mud, or other uneven surfaces.
Walking	<b>O</b>	Interchange with standing. May be on metal, dirt, gravel, cement, mud, or other uneven surfaces
Lifting (up to 10 pounds)	<b>O</b>	While lifting personal protective equipment, 2-way radio, paperwork, various hand tools, fuel nozzle, shovel, broom, and tie-down straps.
Lifting (10 to 50 pounds)	<b>S</b>	Potentially if moving items out of the way where machine(s) will be operated, lifting chains used to secure equipment to trailer, lifting hose to refill water tank on sweeper, or assisting other trades. <b>NOTE:</b> According to the Operators interviewed, this position can be self-managed to a point where the physical demands on the Operator are limited, and Operators can generally use equipment to lift or move items.
Carrying (up to 10 pounds)	<b>O</b>	While carrying personal protective equipment, 2-way radio, paperwork, various hand tools, fuel nozzle, shovel, broom, and straps.
Carrying (10 to 50 pounds)	<b>S</b>	Potentially if moving items out of the way where machine(s) will be operated, lifting hose to refill water tank on sweeper, or assisting other trades. <b>NOTE:</b> According to the Operators interviewed, this position can be self-managed to a point where the physical demands on the Operator are limited, and Operators can generally use equipment to transport/move items as needed.
Pushing/Pulling (Up to 10 pounds)	<b>F</b>	Up to 2 hours at a time with up to an estimated 10 pounds of force. Primarily while operating hand controls, joy sticks, and levers on machinery, or while driving equipment/vehicles with a steering wheel. Potentially while shoveling, sweeping, or dragging chains use to secure equipment to trailer.



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Pushing/Pulling (10 to 25 pounds)	S	Potentially if moving items out of the way where machine(s) will be operated, releasing or tightening chain binders used to secure equipment to a trailer, or pulling water hose to hydrant to fill water tank on sweeper.
Climbing Ladders/Stairs	O	While climbing stairs or short ladders to reach cab of equipment/vehicle. Potentially when encountering stairs or curbs in the field, or entering/exiting buildings/construction trailers.
Working at Heights/Balancing	F	Most of the equipment/machines operated by the worker are large machines that have cabs at 4 to 6 feet from the ground. Caution must be used when entering/exiting the equipment. Balancing may be necessary while driving/riding over uneven terrain on work sites. Also, Operators stand while operating asphalt machines while requires balance while the machine is moving.
Bending Neck	C	
Bending at Waist/Stooping	F	While loading/unloading equipment, conducting equipment inspections, entering/exiting equipment, reaching controls, watching for hazards while operating equipment, and cleaning equipment. Worker may be able to reduce bending/stooping by alternating with crouching or kneeling.
Crouching/Kneeling	S	Most commonly occurs while inspecting and cleaning equipment. Potentially while on metal, dirt, gravel, cement, mud and uneven surfaces. The employee might be able to reduce crouching/ kneeling by alternating with bending/stooping.
Crawling	S	Rare. Potentially when climbing on equipment or transport trailer, or conducting inspections.
Twisting at Waist	O-F	Depending on work/equipment being used. While driving or operating equipment, and while shoveling,
Reaching (Floor to Shoulder)	F	While operating/driving equipment. Potentially while conducting inspections.
Reaching (Over the Shoulder)	S-O	Depending on work/equipment being used. Reaching controls, knobs, and switches on equipment, fueling machines, or opening windows on machinery.
Foot Controls	F	While driving vehicle to a work site, or operating machinery/ equipment.
Repetitive Motion	S-F	Depending on work assigned and equipment being operated. Would primarily be related to repetitive use of wrists and arms while controlling equipment using a steering wheel, levers, or joy sticks.
Keyboarding	S	Workers use computer keyboard to enter time spent on projects/ work orders each day.
Handling/Grasping	C	30 % Pinch Grasp 70 % Whole Hand Grasp – Primarily while using controls on equipment.
Fine Finger Manipulation	F	While operating controls, levers, switches, and buttons while operating machinery. Finger controls may consist of various small levers, thumb and finger trigger buttons, and switches. Using keys to start equipment.
Talking	O-F	Communicating with co-workers, supervisors, and public.
Hearing	C	Communicating with co-workers, supervisors, and public. Listening for signs of danger (traffic, yelling, radio).
Seeing	C	Visual abilities would be considered important in this position.
Writing	S	Limited. Writing notes and measurements.





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Normal Job Site Hazards	C	Work may be performed on a construction site, or near traffic exposing the worker to moving vehicles and equipment. Workers are exposed to outside weather conditions, as some machinery is operated from open cockpits (although they are generally covered). The employee is exposed to whole body vibrations (particularly significant when operating an asphalt roller, or driving a backhoe on the street), dust, fumes and odors. The employee may also work inside an enclosed cab that may have limited ventilation (some have air conditioning). The heavy equipment can range from loud to very loud (hearing protection is available).
Expected Environmental Conditions	C	Workers are generally exposed to all types of weather conditions, and may operate equipment from an open or enclosed cab that may have limited ventilation (some have air conditioning). The environments in which the workers work may have dust and fumes.





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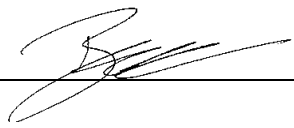


The above job analysis represents the requirements of a specific job based on personal observations, discussions with employer representatives, and/or workers. On occasion, practicality and feasibility prevent the direct observation and/or gathering of objective quantifiable data. For this reason, a "best estimate" may have been used when reporting physical demand frequencies.

Analysis was done on the job site?  Yes  No

Job Analysis Reviewed By: Tom Berg and Shane Shauf

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

Date May 3, 2018 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**