

**Department of Human Resources**

Employee Health & Safety Division  
Disability Services Section  
500 4<sup>th</sup> Avenue, Room 500  
Seattle, WA 98104  
(206) 477-3350  
(206) 296-0514 FAX  
[www.kingcounty.gov](http://www.kingcounty.gov)

Employee :

Claim # :

## JOB ANALYSIS

Job Title:	Transit Maintenance Machinist		
Department:	Transportation	Division	Transit
DOT Title:	Machinist, Automotive	DOT #:	600.280-034
SVP:	7	Requestor:	Jeff Casem
Worksite Address:	South Base 12100 E Marginal Way S, Tukwila, WA 98168	Office Contact Name/ Phone/ Email:	Ian Hanson 206-477-0159 Ian.Hanson@kingcounty.gov
Original Analyst:	Kyle Pletz, VRC, CDMS		Analysis Date: 9/6/22
Update Analyst:			Update Date:

☒ On-Site    ☐ Interview    ☐ Representative

**JOB DUTIES:**

Responsible for performing machining activities on mechanical and automotive equipment for Transit vehicles in the Vehicle Maintenance Section. This position requires skills in machining techniques, machining methods, and with tool operating procedures. Must be able to read blueprint specifications to fabricate replacement parts.

**ESSENTIAL FUNCTIONS ACCORDING TO THE EMPLOYER:**

All King County jobs require ability/essential function to:

- Demonstrate predictable, reliable, and timely attendance.
- Follow written and verbal directions to complete assigned tasks on schedule.
- Read, write, and communicate in English & understand basic math.
- Learn from directions, observations, and mistakes and apply procedures using good judgment.
- Work independently or as part of a team and interact appropriately with others.

**Job Specific Requirements:**

1. Perform skilled machining operations on mechanical/automotive equipment in support of the Vehicle Maintenance Section.
2. Set up and operate manual and C.N.C. machine tools such as engine lathes, grinders, honing, milling machines, drill presses, metal spraying equipment and metal working machines.
3. Repair and rebuild automotive/mechanical components from equipment such as engines, transmissions, differentials, gears and shafting.
4. Remove broken bolts and fasteners, repair and replace damaged screw thread (Heli-coil), thread inserts, and recut threads.
5. Fabricate hydraulic systems and special fittings and attachments for automotive and other equipment.
6. Disassemble, repair, re-assemble and install pumps, compressors and electric motors in proper alignment.
7. Fabricate replacement parts from raw material.
8. Read and follow blueprints and sketches to repair and fabricate replacement parts. Fabricate necessary fixtures, tools and dies.
9. Determine precise tolerances using micrometers, dial indicators, Vernier Height Gauges and other appropriate instruments for measurement.
10. Using prescribed safety methods, rig, lift and transport heavy motors, pumps, engines, transmissions, valves and related equipment from one work location to another.
11. Evaluate needs and failures, and determine appropriate course of action.



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12. May provide direction to other employees in the skilled crafts area on assigned work projects.
13. Clean and store equipment and tools. Design and sharpen tool bits as necessary. Keep work area clear.
14. Provide machining support for the streetcar/light rail.
15. Work with computer terminal to input and extract data as required.

### **EXPERIENCE, QUALIFICATIONS, KNOWLEDGE, SKILLS:**

- Completion of a 4-year machinist apprenticeship program **or** any equivalent combination of experience and education, which provides the applicant with the desired skills, knowledge and, ability required to perform the work.
- Two years of journey-level experience as a maintenance machinist and the demonstrated ability to perform work at the journey level.
- Knowledge of industrial safety rules, shop safety rules, and applicable regulations and procedures that apply to a vehicle repair facility.
- Strong knowledge and understanding of automotive parts and components.
- Skill in conceptualizing, measuring, and fabricating metal parts, tools, equipment, fixtures, and related metal items.
- Skilled in the use of hand tools, air drills, die grinders, torque wrenches, and hydraulic presses.
- Skill in basic mathematics.
- Ability to work from drawings, blueprints, schematics, specifications, sketches, and from oral and written directions.
- Ability to input and extract data as needed from a computer. Skilled in CAD/CAM software.
- Good communications skills for the purposes of being able to read, write, and follow verbal instructions.
- Ability to work independently with minimal supervision and maintain quality standards.
- Ability to work on a team with a diverse group of employees.
- Ability to meet and maintain the attendance requirements of the position.

### **Necessary Special Requirements**

A valid driver license with acceptable driving record and the demonstrated ability to drive in a safe and responsible manner is required. Out of state applicants must obtain their Washington State driver license by hire date.

### **Machines, Tools, Special Equipment, Personal Protective Equipment Used:**

Computer, telephone, cellular phone, forklift, crane, hoist (manual and electric), wrenches, pry bars, hammer, chisel, screwdrivers, grinders, welding equipment, plasma cutter, reciprocating saw, roto-hammer, presses, lathes, vertical and horizontal mills, drills, pneumatic and electric impact tools, various vehicles, hydraulic gear puller, micrometer, carbon arc, cutting torch, dial indicator, CNC machine, and various hand and power tools.

Employees also may use protective equipment that may include the following:

Respiratory Protection: Dust mask, 1/2 face, full face,

Hearing Protection: Ear plugs and earmuffs.

Eye Protection: Safety glasses and goggles.

Foot Protection: Steel toe boots.

Hand protection: Gloves.

Face/Head Protection: Hardhat.



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### PHYSICAL REQUIREMENTS

Frequency Scale	Strength	Work Pattern	
<b>N</b> = Never	<input type="checkbox"/> Sedentary	<input checked="" type="checkbox"/> Full-time	
<b>S</b> = Seldom (1-10 %, up to 48 min)	<input type="checkbox"/> Light	<input type="checkbox"/> Part-time	
<b>O</b> = Occasional (11-33%, 49 min. – 2 hr 40 min)	<input checked="" type="checkbox"/> Medium	<input type="checkbox"/> Seasonal	
<b>F</b> = Frequent (34-66%, 2 hr 41 min – 5 hr 20 min)	<input type="checkbox"/> Heavy	8-10	Hours Per Day
<b>C</b> = Constant (67-100%, more than 5 hr 20 min)	<input type="checkbox"/> Very Heavy	4-5	Days Per Week
		FLSA Exempt <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

#### Work Pattern (continued)

Overtime required on emergency basis, but most overtime is optional.

Job Demand	Frequency and Weight (lbs.)					Activity Description
	N	S	O	F	C	
<b>Lifting</b> floor – waist		*51-100	16-50	1-15		<p>Up to 15 min./time, 3 hrs. total with 1-15 lbs. while using hand tools such as wrenches, impact wrenches, sockets, hammers, grinders, welding equipment, plasma cutter, reciprocating saw, drills and pry bars. Manipulating parts, pipes, valves, etc.</p> <p>Up to 1-2 min./time, 1 hr. total with 16-50 pounds while using power tools such as pneumatic and electric impact wrenches, grinders, welding equipment, roto-hammer, and pry bars. Manipulating parts, pipes, valves, etc.</p> <p>Up to 5 sec./time, 30 sec. total with 51-100 lbs. <b>(with assistance)</b> while moving electric motors or a bucket or toolbox containing multiple hand and power tools.</p> <p>*When the employer requires the employee to lift in excess of 50 pounds there are cranes, hoists and lifting assistance are available.</p>



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Job Demand	Frequency and Weight (lbs.)					Activity Description
	N	S	O	F	C	
<b>Lifting</b> waist–shoulder		*51-100	16-50	1-5 6-15		<p>Up to 15 min./time, 3 hrs. total with 1-15 lbs. while using hand tools such as wrenches, impact wrenches, sockets, hammers, grinders, welding equipment, plasma cutter, reciprocating saw, drills and pry bars. Manipulating parts, pipes, valves, etc.</p> <p>Up to 1-2 min./time, 1 hr. total with 16-50 pounds while using power tools such as pneumatic and electric impact wrenches, grinders, welding equipment, roto-hammer, and pry bars. Manipulating parts, pipes, valves, etc.</p> <p>Up to 5 sec./time, 30 sec. total with 51-100 lbs. <b>(with assistance)</b> while moving electric motors or a bucket or toolbox containing multiple hand and power tools.</p> <p>*When the employer requires the employee to lift in excess of 50 pounds there are cranes, hoists and lifting assistance available.</p>
<b>Lifting</b> above shoulder		6-15 16-50	1-5			<p>Up to 5 min./time, 1.5 hrs. total with weights of 1-5 pounds while using hand tools such as wrenches, sockets, hammers, bolts, pipes, valves, pry bars, etc.</p> <p>Up to 1-2 min./time, 45 min. total with of 6-15 pounds while using power tools such as pneumatic and electric impact wrenches, grinders, welding equipment, roto-hammer, and pry bars. Manipulating parts, tools, raw materials, etc.</p> <p>Up to 30 sec./time, 15 min. total with 16-50 pounds while using power tools such as pneumatic and electric impact wrenches, grinders, welding equipment, roto-hammer, and pry bars. Manipulating parts, tools, raw materials, etc.</p> <p>*When the employer requires the employee to lift in excess of 50 pounds there are cranes, hoists and lifting assistance available.</p>



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Job Demand	Frequency and Weight (lbs.)					Activity Description
	N	S	O	F	C	
<b>Carry</b> (Distance/Surface)		6-30 31-50	1-5			<p>Up to 5 min./time, 1 hr. total with 1-5 pounds while transporting hand tools from truck to workstation. Hand tools may include wrenches, sockets, hammers, and pry bars. Carts are available.</p> <p>Up to 5 min./time, 30 min. total with 6-30 pounds while transporting hand and power tools from truck to workstation. Hand and power tools may include wrenches, impact wrenches, sockets, hammers, grinders, welding equipment, plasma cutter, reciprocating saw, drills and pry bars.</p> <p>Up to 50 feet up to 4x in a work shift. Most commonly occurs with weights of 31-50 pounds while transporting hand and power tools from truck to workstation. Power tools may include pneumatic and electric impact wrenches, grinders, welding equipment, roto-hammer, and pry bars.</p>
<b>Pushing/Pulling</b> (Distance/Surface)		*50-100	16-50	1-15		<p>Up to 15 min./time, 3 hrs. total with 1-15 lbs. while using hand tools such as wrenches, impact wrenches, sockets, hammers, grinders, welding equipment, plasma cutter, reciprocating saw, drills and pry bars. Manipulating parts, tools, electric motors, etc.</p> <p>Up to 1-2 min./time, 45 min. total with 16-50 pounds while using power tools such as pneumatic and electric impact wrenches, grinders, welding equipment, roto-hammer, and pry bars. Manipulating parts, pipes, valves, carts, etc. Sliding shelves with cylinder heads on them (45 lbs.), cart with cylinder heads (45 lbs.).</p> <p>Up to 5 sec./time, 30 sec. total with 51-70 lbs. while moving electric motors or a bucket or toolbox containing multiple hand and power tools; building materials, equipment carts. On an extremely rare occasion, employee may need to manipulate a 100 lb. piece of equipment, building materials, carts.</p> <p>*Cranes, hoists and lifting assistance are available on most occasions.</p>



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Physical Demands	Frequency					Activity Description
	N	S	O	F	C	
Sitting			X			Up to 30 min./time, 1.5 hrs. total while driving as well as performing computer work.
Standing					X	Up to 1 hr./time, 6 hrs. total on flat cement while extracting broken bolts, performing bench work, operating lathes, removing or rebuilding or building parts (cylinder heads, exhaust manifolds, transmission housings, etc.)
Walking				X		Up to 1000' (5-10 min./time), up to 4 hr. total in a work shift while traversing flat cement in the shop. Transporting parts, utilizing carts.
Perform Work on Ladders		X*				At heights up to 15' for 10 min/time, 1 hr. total while working on upper areas of the bus. *Ladder can commonly be avoided by utilizing rolling staircase.
Climbing		X				Using mobile stairs at heights of 15' for 10 min/time, 1 hr. total while working on upper areas of the bus.
Balancing			X			At heights of 15' for 10 min/time, 1 hr. total while working on upper areas of the bus. Traversing slick surfaces (such as oil spill).
Stooping / Bending		X				Up to 5 min./time, 30 min. total while working on lower areas of coaches.
Twisting at Neck			X			Up to 5 min/time, 1.5 hrs. total while performing awkward twisting postures to access bolts/screws/lines etc.
Twisting at Waist			X			Up to 5 min/time, 1.5 hrs. total while working on coaches which may require awkward twisting postures to access bolts/screws/lines etc.
Squatting / Kneeling		X				Up to 5 min./time, 30 min. total while working on lower areas of coaches.
Crawling		X				Rarely may need to access low area of a coach.
Reach waist to shoulder					X	Up to 2 hrs./time, 8 hrs. total while removing, rebuilding or repairing parts such as cylinder heads, exhaust manifolds, transmission housings, etc. Sand blasting, milling, CNC machine, computer duties, using hand tools, removing broken bolts, etc. Performing bench work.
Reach above shoulder			X			Up to 5 min./time, 1.5 hrs. total while working on upper areas of coaches.
Reach below waist			X			Up to 5 min./time, 2 hrs. total while working on lower areas of the coaches.
Keyboarding		X				Up to 5 min./time, 15 min. total while performing computer duties. CNC machine.
Wrist Flexion/Extension				X		Up to 15 min./time, 4 hrs. total using and holding various hand tools as well as manipulating equipment nuts, bolts, materials, etc.
Handle/Grasp					X	Up to 3 hrs./time, 9 hrs. total while using and holding various hand tools as well as operating an automobile.



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	N	S	O	F	C	
Forceful Grasp			X			Up to 5 min./time, 1.5 hrs. total while utilizing tools such as prybar, wrenches, torque wrenches, etc. Also forcefully grasps when manipulating, parts, tools, equipment and materials.
Fine Finger Manipulation				X		Up to 1 hr./time, 4 hrs. total while loosening and tightening screws, nuts and bolts with fingers; manipulating small hand tools, measuring, computer equipment. Operating press, lathe, etc. Rebuilding cylinder heads.
Hand Controls			X			Up to 45 min./time, 4 hrs. total while operating various vehicles, power equipment, shop machines or a crane. Shop equipment may include drill presses, lathe, mill, and hydraulic gear puller.
Foot Controls			X			Up to 45 min./time, 1.5 hrs. total while driving a work truck.
Repetitive Motion		X				Body part   Upper extremities   Cycles/hr.   200+
Vibratory Tasks – High			X			Up to 1 min./time, 2 hrs. total while using impact tools, air hammer, pneumatic chisel, etc.
Vibratory Tasks – Low				X		Up to 15-30 min./time, 4 hrs. total while using sanders, drills, grinders, etc.
Talking		X				Up to 15 min./time, 2 hr. total while conversing about duties, and giving and receiving directions and instructions.
Hearing					X	Up to 2 hr./time, 8-9 hrs. total while conversing about duties, listening for mechanical failures of vehicles, and giving and receiving directions and instructions. Listening for machine alarms, moving vehicles, backing coaches, etc.
Visual – Near Acuity				X		Up to 2 hrs./time, 4 hrs. total assembling, disassembling, repairing, rebuilding, and inspecting parts and machinery.
Visual – Far Acuity			X			Up to 45 min./time, 1.5 hrs. total while driving.
Visual – Depth Perception			X			Up to 45 min./time, 1.5 hrs. total while driving and operating machines.
Visual – Color Discrimination			X			Up to 15 min./time, 2 hrs. total while identifying danger alarms Also needs to be able to identify red and green warning lights that indicate whether or not the overhead high voltage power lines for the electrical buses are active. Fire exit routs are marked with a red line.
Visual – Accommodation			X			Up to 45 min./time, 1.5 hrs. total while driving.
Visual – Field of Vision			X			Up to 45 min./time, 1.5 hrs. total while driving.
Exposure to Weather		X				Traversing various bases.
Extreme Cold		X				Freezing temperatures rarely,
Extreme Hot			X			Hot engines and engine exhausts. Utilizing a torch, drilling out broken bolts.
Wet and / or Humidity				X		Lubricating fluid, coolant water.
Proximity to Moving Mechanical Parts				X		Work is performed around industrial equipment.
Exposure to Explosives	X					
Atmospheric Conditions				X		Dusts, exhaust, odors.



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	N	S	O	F	C	
Exposed Heights		X				Top of coaches (with fall protection and confined space requirements)
Exposure to Electricity			X			Working around other trade workers and equipment that may be electrified. Extracting a broken bolt from a battery. Overhead powerlines.
Exposure to Toxic / Caustic Chemicals			X			Brake cleaner, lubricating fluids, solvents, automotive fluids, etc.
Exposure to Radiation	X					
Noise Intensity	<input type="checkbox"/> Very Quiet <input checked="" type="checkbox"/> Quiet <input checked="" type="checkbox"/> Moderate <input checked="" type="checkbox"/> Loud <input checked="" type="checkbox"/> Very Loud					The noise level varies from quiet to very loud. Hearing protection is required in some areas.
Other:						





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### Analyst's Comments:



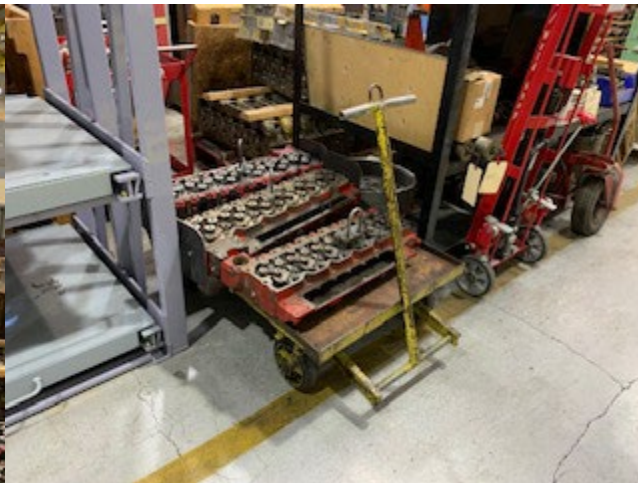
**CNC controls**



**Lathe**



**Rolling Shelves with Cylinder Heads**



**Cylinder Heads on Cart**



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### Possible Employer Modifications:

Anti-vibration gloves for when working with impact or vibratory tools.

### Update Comments (if applicable):

**Note:** The information for this job analysis was gathered by either on-site observation, interview and / or is representative of the labor market as indicated on page one. Additional data may have been obtained from standardized industry resources such as the DOT, GOE, COJ, OOH, WOIS and O-NET. 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.

### Analyst:

  
Kyle Pletz, VRC, CDMS (Sep 7, 2022 12:09 PDT)

Kyle Pletz, BA, BA, VRC, CDMS

Sep 7, 2022

Vocational Consultant

Date

### Update (if applicable):

Vocational Consultant

Date

### Employer Verification:

  
Ian Hanson (Sep 7, 2022 12:07 PDT)

Ian Hanson

Sep 7, 2022

Name

Date

### Employee Verification: (optional)

Name

Date



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### MEDICAL PROVIDER:

- ☐ I agree that the employee can perform the physical activities described in this job analysis and can return to work. Date employee is released to return to work if different from today's date: \_\_\_\_\_
- ☐ I agree the employee can perform the described job but only with modifications (describe in comments section). Modifications are needed on a ☐ permanent basis or ☐ temporary basis.
- ☐ The employee **temporarily** cannot perform this job based on the following physical limitations:

**Anticipated release date:** \_\_\_\_\_

**Treatment plan:** \_\_\_\_\_

- ☐ The employee is **permanently** restricted from performing the physical activities described in this job analysis based on the following physical limitations (state objective medical findings):

### Comments:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name

- ☐ Attending Physician      ☐ Consulting Physician      ☐ Pain Program Physician
- ☐ IME Physican      ☐ PCE Therapist      ☐ OT / PT Therapist      ☐ PEP Physician









# KCJA Transit Maintenance Machinist 9-6-22

Final Audit Report

2022-09-07

Created:	2022-09-07
By:	Kyle Pletz, VRC, CDMS (kpletz@nim.vocmail.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAf-JQPszyt_6Fm9VZLuGJKY0Z89QfW1TS

## "KCJA Transit Maintenance Machinist 9-6-22" History

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