



**Disability Services**  
**Safety and Claims Management**  
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 Human Resources Management Division  
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## JOB ANALYSIS SUPPLEMENT HAND FUNCTIONS

Job Title:	Transit Operator	DOT Title:	Bus Driver (motor trans.)
SVP:	4	DOT #:	913.463-010
Location of Analysis:		Name of Employee:	
Analyst:	Kyle Pletz, VRC, CDMS	JA Source:	Gennia Wellington-Cheatham
Presenting VRC:		Employer Contact:	Judy Young
Date Analysis Completed:	11/19/19	Supervisor Contact Information	Phone: 206-263-5861 E-mail: jyoung@kingcounty.gov

### Operating Controls with Hands: Right X Left X

Continuously for up to 2 hours at a time for up to 8 hours total in a work shift while driving the bus.

King County Metro operates several different makes and models of coaches, most of which use the same individual components, per procurement agreements; however there are some minor variances in coaches. There can also be variances of hand controls between coaches due to wear and tear of parts, route (steep hills, downtown, frequent stops vs. freeway with fewer stops and lane changes), driving surfaces, etc.

The Operator continuously uses a steering wheel while driving and frequently uses additional hand controls such as hill holder, parking brake, air brake, fans, lights, doors, mirror, climate control, mirrors, etc. Turn signals are operated with the feet, not the hands.

Bus Make/Model	Wheel Diameter	Spoke Diameter	Spoke Circumference	Lock to Lock
2800 60' New Flyer	19"	1 5/8"	4"	4
4500 60' New Flyer	20"	1 7/8"	4 1/6"	4
4300 40' New Flyer	20"	1 7/8"	4 1/6"	4
6000 60' New Flyer	20"	1 7/8"	4 1/6"	4
6200 60' New Flyer	20"	1 7/8"	4 1/6"	4
7000 40' Orion	20"	1 7/8"	4 1/6"	4
8000 60' New Flyer	20"	1 7/8"	4 1/6"	4

Bus Make/Model	Max Wheel Force- Stopped with Brake	Max Wheel Force- Lane Change	Push/Pull distance 6-15"		Hand over Hand Rotations	
			Lane	90 deg.	Lane	90 deg.
2800 60' New Flyer	5 lbs.	2.5 lbs.	1-3	3	0	1.5-3
4500 60' New Flyer	5 lbs.	2.5 lbs.	1-3	3	0	1.5-3
4300 40' New Flyer	5 lbs.	2.5 lbs.	1-3	3	0	1.5-3
6000 60' New Flyer	5 lbs.	2.5 lbs.	1-3	3	0	1.5-3
6200 60' New Flyer	5 lbs.	2.5 lbs.	1-3	3	0	1.5-3
7000 40' Orion	5 lbs.	2.5 lbs.	1-3	3	0	1.5-3
8000 60' New Flyer	5 lbs.	2.5 lbs.	1-3	3	0	1.5-3



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Bus Make/Model	Wheel Hor. Plane Adj. Range	Wheel Vert. Plane Adj. Range	Throttle Engage Range to Max	Brake Engage Range to Max
2800 60' New Flyer	8-43 degrees	65-80 degrees	45-30	45-35
4500 60' New Flyer	8-45 degrees	65-80 degrees	45-30	45-35
4300 40' New Flyer	8-45 degrees	65-80 degrees	45-30	45-35
6000 60' New Flyer	8-45 degrees	65-80 degrees	45-30	45-35
6200 60' New Flyer	8-45 degrees	65-80 degrees	45-30	45-35
7000 40' Orion	8-45 degrees	65-80 degrees	45-30	45-35
8000 60' New Flyer	8-45 degrees	65-80 degrees	45-30	45-35



**EXTENSION:** This is required as a component of the motion to apply the PP-1 (air brake) valve. This is performed on an occasional to frequent basis – see tip grasp for details.



**FLEXION:** This is required as a component of the motion to apply the PP-1 (air brake) valve. This is performed on an occasional to frequent basis – see tip grasp for details.



**CYLINDRICAL GRIP (Side Pinch):** Although the steering wheel of the bus is grasped in a neutral manner (see photos) for the majority of the time, this grip is utilized during the hand over hand motion required to fully rotate the steering wheel. This occurs on an Occasional to Frequent basis dependent on route and rider ship. This grasp also occurs when reaching at shoulder to above shoulder level when pulling the poles of an electric trolley (40 and 60 ft.). This activity requires grasping a 3/8 inch nylon rope and pulling up to 30 lbs. to either remove poles from rack on top of bus, or to re-position on electric lines.



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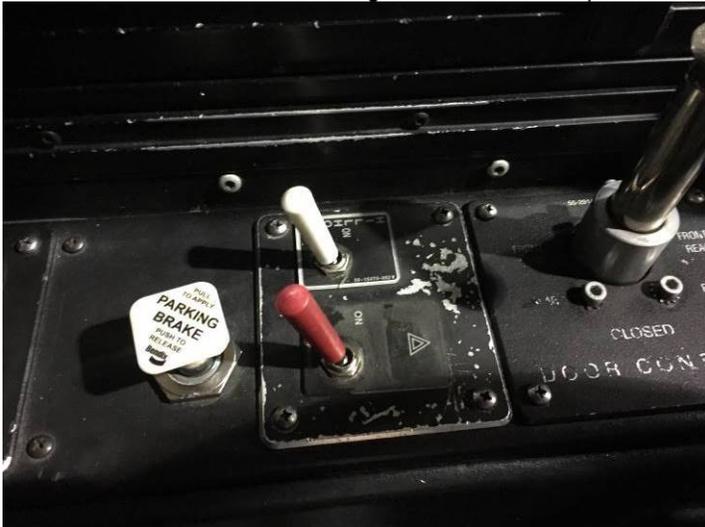
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PALMAR GRASP (Tip Pinch): Up to 3 sec, time, 10 min. total while operating hill holder switch. Hill holder switch usage varies based upon route (freeway driving vs. downtown with hills).





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**HOOKING GRASP:** Operator pulls air brake switch with up to 7 lbs. of force. On a rare occasion the operator may need to open the rear engine compartment with 33-40 lbs. of force. Once the door is opened, it lifts hydraulically. Also, the employee needs to pull overhead 25-30 lbs. for up to 2 min./time while resetting the electrical poles well as 27 lbs. of force, while resetting a retriever. The employee may need to push/ pull up to 33 lbs. for up to 10 sec./time, while manually opening or closing the wheelchair ramp.



**TIP GRASP:** Engaging the PP 1 air brake valve with 2 or 3 fingers with up to 7 lbs. of force.



**LATERAL GRASP (Key Pinch) with Twist** (forward and aft Ulnar deviation: Pounds of force required to turn the steering wheel can slightly vary, based upon regular wear and tear of parts, vehicle weight, driving surface, inclines/declines, etc.





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**Analyst's Comments:**

**Possible Employer Modifications:**

**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:**

**Presenting VRC signature:**

\_\_\_\_\_  
Vocational Consultant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Vocational Consultant

\_\_\_\_\_  
Date

**Employer Verification:**

**Employee Verification:** (optional)

\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
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.

State 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  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

- |                                              |                                               |                                                 |
|----------------------------------------------|-----------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> Attending Physician | <input type="checkbox"/> Consulting Physician | <input type="checkbox"/> Pain Program Physician |
| <input type="checkbox"/> IME Physician       | <input type="checkbox"/> PCE Therapist        | <input type="checkbox"/> OT / PT Therapist      |
| <input type="checkbox"/> PEP Physician       |                                               |                                                 |