**Wheel Balance**

**Description**

This activity plan is designed as one among many through which students will rotate in small groups. The activity involves dismounting and remounting a tire on a tire machine. Such operations are required in the automotive field whenever a different tire has to be installed on a rim/wheel or for a flat repair. Many entry- or apprentice-level mechanics are required to be

quite competent in this task. This activity would definitely be considered to be a “hook” exercise, designed to draw interest into the field.

## Lesson Outcomes

The student will be able to balance a single wheel and/or tire assembly so that each side of the tire is balanced to specifications.

## Assumptions

Many of the terms used in this activity plan overlap with Tire Change. This activity should be introduced after the tire change activity. Before trying themselves, students should have been given some theory and the instructor should have demonstrated the proper procedures for balancing a tire.

## Terminology

**Aluminum mag:** a wheel that is constructed of aluminum.

**Bead area:** the area of the tire that is sealed to the rim.

**Rim centre:** the middle of the wheel (the round opening in the centre).

**Rim diameter:** the diameter of the wheel, not the tire.

**Rim width:** how wide the rim is.

**Steel wheel:** a wheel that is constructed of steel.

**Tire balancing machine:** a machine that is used to calculate how much weight has to be installed on each side of the tire/rim assembly.

**Wheel weight:** a small weight that is hammered onto the wheel in order to equalize or balance the tire.

**Wheel weight hammer:** a small, specialized hammer that is used to install the wheel weights onto the rim assembly.

**Zero:** the reading that most wheel balancers state when both sides of the tire/rim assembly are balanced.



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## Estimated time

30–45 minutes

## Recommended Number of Students

20, based on the *BC Technology Educators’ Best Practice Guide,* groups of 2–3 students

## Facilities

Automotive shop or similar

## Tools

* Tire balancing machine
* Wheel balance weight pliers
* Wheel weight hammer



**Figure 1—**Wheel balance weight pliers

## Materials

* At least one wheel/tire assembly
* Selection of wheel weights

**Resources for Tire Change and Wheel Balance**

**Tire Removal/Replacement—Andrada Polytechnic High School**

https://[www.youtube.com/watch?v=BsOUtR\_lTeE](http://www.youtube.com/watch?v=BsOUtR_lTeE)

### MSCTC Tire Changing Training Video

[www.youtube.com/watch?v=tmW9YJpVwO4](http://www.youtube.com/watch?v=tmW9YJpVwO4)

### Dismount and Mount Tire Demo

[www.youtube.com/watch?v=m303xb2CUjw](http://www.youtube.com/watch?v=m303xb2CUjw)

### How to Mount and Balance a Tire—Eric the Car Guy

[www.youtube.com/watch?v=8hOZXIr1ujE](http://www.youtube.com/watch?v=8hOZXIr1ujE)

### Tire Balancer Demo

[www.youtube.com/watch?v=bC5p08jTTvo](http://www.youtube.com/watch?v=bC5p08jTTvo)

Youth Explore Trades Skills **3**

# Activity

1. Make sure both the inner and outer beads of the tire are properly seated on the wheel.
2. Ensure that the tire pressure is within manufacturer’s specifications.
3. Mount the tire/wheel assembly onto the tire machine using the correct size centring cones.
4. Make sure that the wheel assembly is properly mounted.
5. Measure the rim diameter and enter this number into the wheel balancer.
6. Measure the rim width and enter this number into the wheel balancer.
7. Measure the distance the inside of the wheel assembly sits from the wheel balancer and enter this number into the machine.
8. Start the machine and then wait until it stops.
9. Most tire machines will give numbers for balancing both the left and right sides of the wheel/tire assembly.
10. Rotate the wheel into the exact position that the balancer wants and install the required wheel weight onto the left side of the wheel.
11. Rotate the wheel again into the exact position that the balancer wants and install the required wheel weight onto the right side of the wheel.
12. Start the machine again and wait until it stops.
13. If done correctly, both sides of the wheel should read to zeroes.
14. If numbers other than zeroes appear, it is best to start the process again from step number 8.

## Evaluation Guidelines

Wheel Balance Rubric (see next page)

Name:

**Wheel Balance Rubric**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Poor** | **Below Standard** | **Satisfactory** | **Good** | **Excellent** |
| Are the correct centring cones used? | 1 | 2 | 3 | 4 | 5 |
| Are the correct rim diameter specifications entered into the balancer? | 1 | 2 | 3 | 4 | 5 |
| Are the correct rim width specifications entered into the balancer? | 1 | 2 | 3 | 4 | 5 |
| Is the correct distance that the tire sits from the balancer entered? | 1 | 2 | 3 | 4 | 5 |
| Does the balancer read “Zero” on both sides to indicate that the tire is successfully balanced? | 1 | 2 | 3 | 4 | 5 |
| **Total: /25** | | | | | |