

OPERATING INSTRUCTIONS

Bicycle Wheel Gyroscope No. 74786-1

1. Introduction

The 74786-1 Bicycle Wheel Gyroscope is a device used for performing gyroscopic experiments. It is especially well suited for conducting demonstrations before large audiences and for allowing students to actually feel gyroscopic forces.

2. Description

The device consists of a bicycle wheel with an inner-tube tire and a ball-bearing axle. The axle is fitted with a handle on each side of the wheel so that the apparatus can be held firmly. An eyebolt on the end of each handle permits suspension by either a single cord or by two cords for demonstrations. Hand guards are provided to protect the hands of the operator from the wheel. The Bicycle Wheel Gyroscope has a large moment of inertia in comparison to its weight.

3. Assembly

The Bicycle Wheel Gyroscope is shipped with the handles and hand guards removed from the axle. These items are contained in a packing envelope. To complete the assembly of the gyroscope, follow this simple procedure:

- Insert a hand guard on one end of the axle.
- Screw the handle onto the axle and tighten firmly in place.
- Repeat the same procedure on the other end of the axle.

4. Operation

Hold the Bicycle Wheel Gyroscope by one handle so that nothing rubs against the wheel and spin the wheel vigorously.

Hold the spinning wheel by both handles and attempt to turn the axle through an angle. The axis of the wheel will tend to move in a direction at right angles to the direction in which the turning force is applied, demonstrating precession. The effect of precession is detected in this case as a force working against the demonstrator's muscles.

Precession can also be demonstrated with the use of the 74792 Rotating Stool or the 74790 Rotating Platform. Standing on the platform or sitting on the stool, hold the spinning Bicycle Wheel Gyroscope with its axis of spin approximately parallel to a radius of the apparatus. Attempt to raise or lower one handle of the gyroscope relative to the other handle. The platform or stool will rotate slowly, illustrating precession and the conservation of angular momentum.

We suggest consulting a good textbook in physics for a complete description of gyroscope theory to accompany this demonstration.

5. Accessories

<u>Description</u>	<u>Catalog No.</u>
Rotating Platform	74790
Rotating Stool	74792

6. Maintenance

The Bicycle Wheel Gyroscope needs no special maintenance. If you should experience any difficulty with this apparatus, please contact Central Scientific Company, giving details of the problem. To ensure better service, please do not return any apparatus to Central Scientific Company until we have sent you authorization.

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