

## RACING BALL MODEL N-141

This demonstration device is used with an electrostatic generator, such as the WINSKO Model N-100V, to show that like charges repel and that there is noticeable force involved in the repulsion.

The unit should be mounted on top of the Model N-140 Insulating Stand (purchased separately). The ring should then be connected to the dome with a short piece of insulated wire. The Model N-126 Terminal with suction cup will be of great help in making this connection. Another wire jumper should connect the small hook arm on the insulated stand to the ground post on the Van de Graaff Generator. When the generator is running, the ball will roll around the periphery of the disk.

Special comments for best results:

1. Be sure that the pan of the racing ball is level. There isn't enough force available to roll the ball up hill.
2. Be sure that the Van de Graaff Generator is in good operating condition. Connecting this device to the dome causes substantial losses and pulls down the available voltage. With nothing connected to the Van de Graaff Generator you should get a good 4" spark when you bring your fist near the dome. Be careful to make your connection from the dome as short and neat as possible. Avoid all sharp points as they will cause unnecessary voltage loss.
3. Usually, the ball will begin to roll at once. If the available voltage is marginal, there may not be quite enough force to overcome static friction. Tap the pan lightly to help the ball start moving.



What's going on?

The disk above the ball is, of course, at high potential since it is directly connected to the dome. Some electrons will "escape" from the disk to the closest surface of the ball. The electrons on the ball are sitting on an insulator and are, therefore, not free to move around. Since they can't move, a repulsive force is immediately established between the upper disk and the ball, with the natural result that the ball rolls and a new surface is available to receive more electrons. When the charge carried on the rolling ball reaches the lower pan, it is drained off to ground. As the ball turns, one side is carrying charge down to ground and the other side is moving up toward the disk for a new charge. This helps to understand why it is sometimes helpful to jiggle the ball just a touch to get it started.