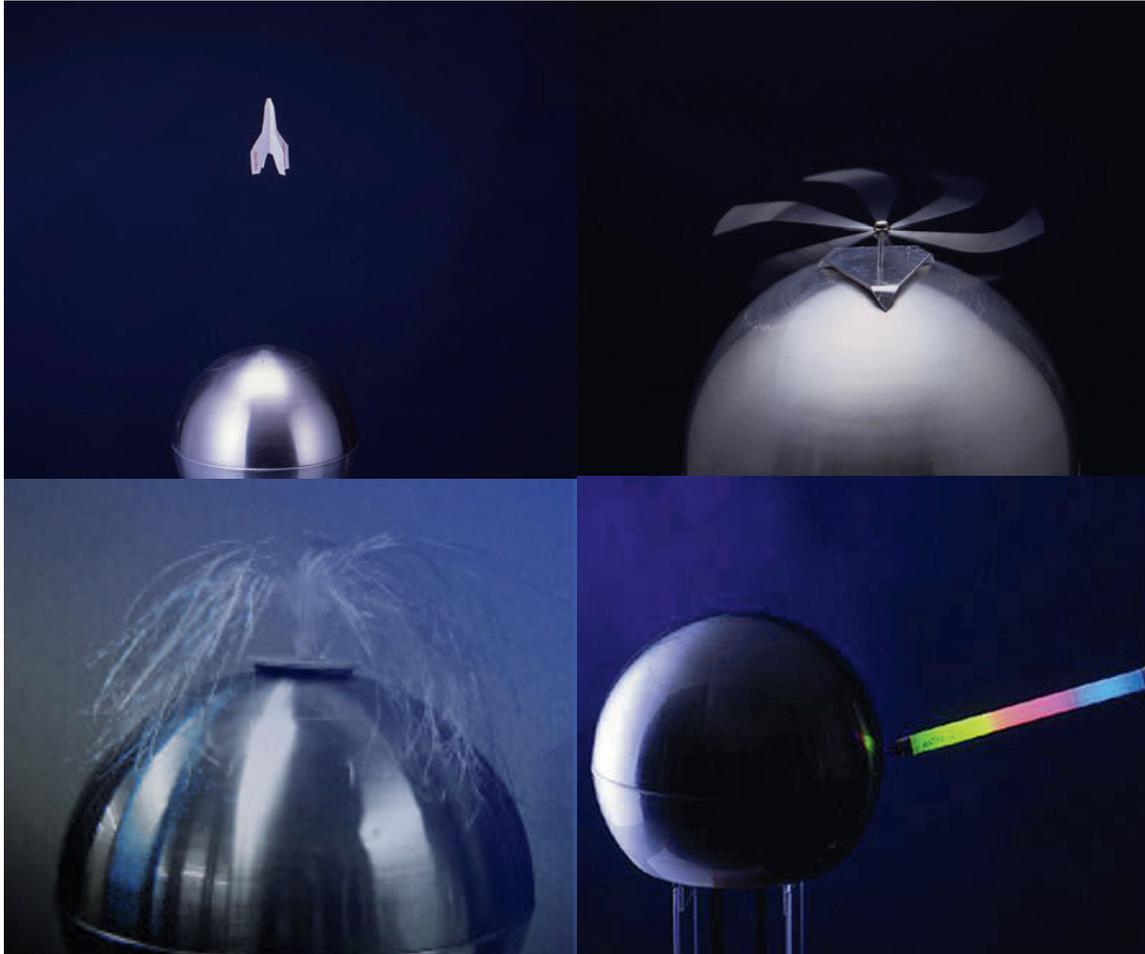


VAN DE GRAAFF EXPERIMENT KIT

N99-B10-1323-EXPSET4



RAIJN



Manual of Operations

IMPORTANT!
Read the following before using this equipment:
Carefully follow all instructions and observe all precautions given in this manual

SIMPLIFIED HAMILTON FLYWHEEL

PREPARATION AND EXPERIMENT

The six discharge needles of the flywheel have not been bent yet. As shown in (Fig. 15) bend the needles about 40 mm from the tip of one needle by hand to complete them. Conduct experiments with different needle bending positions or bending angles to see how the rotation of the flywheel varies.

HOW TO USE

Use the Hamilton flywheel by placing it on top of the collecting sphere as shown in (Fig. 16). In this case, if the legs of the supporting base do not sit on the sphere properly, re-bend the legs of the base (tips of the regular triangle-shaped aluminum base) to a suitable angle using pliers. It is recommended to wrap PVC tape around the tip of the tool (around the areas pinching the workpiece) to bend the legs. This allows you to bend the workpiece without damaging it.



FIG. 15

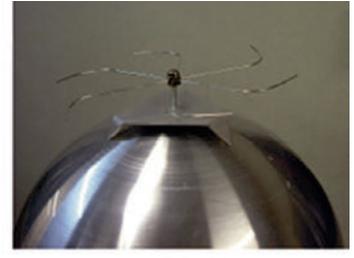


FIG. 16

FIG. 18



ELECTRIC UMBRELLA

PREPARATION

There is a 50-mm white PVC disk with a black O-ring with eight approx. 90-mm long bonded polypropylene strings. Separate these eight polypropylene strings into pieces using a pinholder or a metal comb to complete the electric umbrella. When separating the strings into pieces, do not excessively separate them. Otherwise, they will break off, resulting in many lost polypropylene pieces.

FIG. 17



EXPERIMENT

The electric umbrella (Fig. 17) is used by placing it on top of the collecting sphere as shown in (Fig. 18). In this case, run the belt at low speeds. Otherwise, the umbrella may jump up and slip off the bulb when the belt speed increases. You may fasten it using Scotch tape or PVC tape to prevent it from slipping.

ELECTROSTATIC ROCKET

PREPARATION

Cut out a rocket pattern with the blue logo mark and one with the red logo mark from the electrostatic rocket paper pattern provided with the product. Cut a notch along the 30-mm black line on each rocket pattern. Then, match the notched lines of these two rocket patterns by sliding them one over the other. Then bond the contact areas using woodworking adhesive or tape to complete the paper rocket as shown in (Fig. 19).

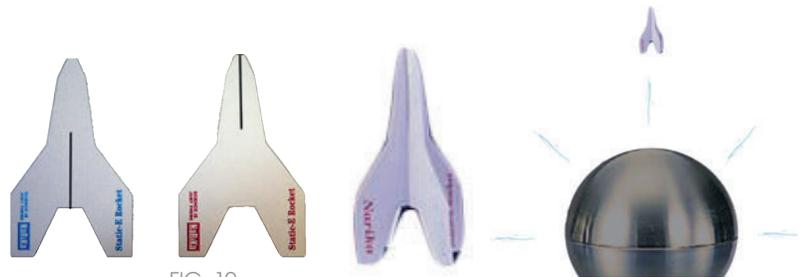


FIG. 19

EXPERIMENT

First, turn OFF the Power switch and turn the speed dial fully clockwise (to the position where the belt is moving at max speed). Then place the rocket on top of the collecting sphere, and turn ON the Power switch. After a short period, the rocket will jump up.

THREE-COLORED FLUORESCENT TUBE

EXPERIMENT

The fluorescent tube provided with the product is an 8-Watt fluorescent tube which contains three fluorescent paint stripes: green, red, and blue. They have been coated in the longitudinal direction. With the belt moving at the maximum speed, hold one end of the fluorescent tube and slowly bring the other end towards the collecting sphere. (Fig. 20) This causes the lamp to light up. Always hold the lamp with your right hand.



CAUTION!

A person who has a weak heart, or an implanted heart pacemaker, or who is in poor physical condition must not conduct these experiments. Never force unwilling participants to conduct these experiments.

- For the 3-colored fluorescent tube lighting experiment, speed and power controls **must be operated by anyone other than the person holding the fluorescent tube**. Otherwise, an electric shock may be caused during operation of the switch, because static electricity accumulates in the person holding the tube.