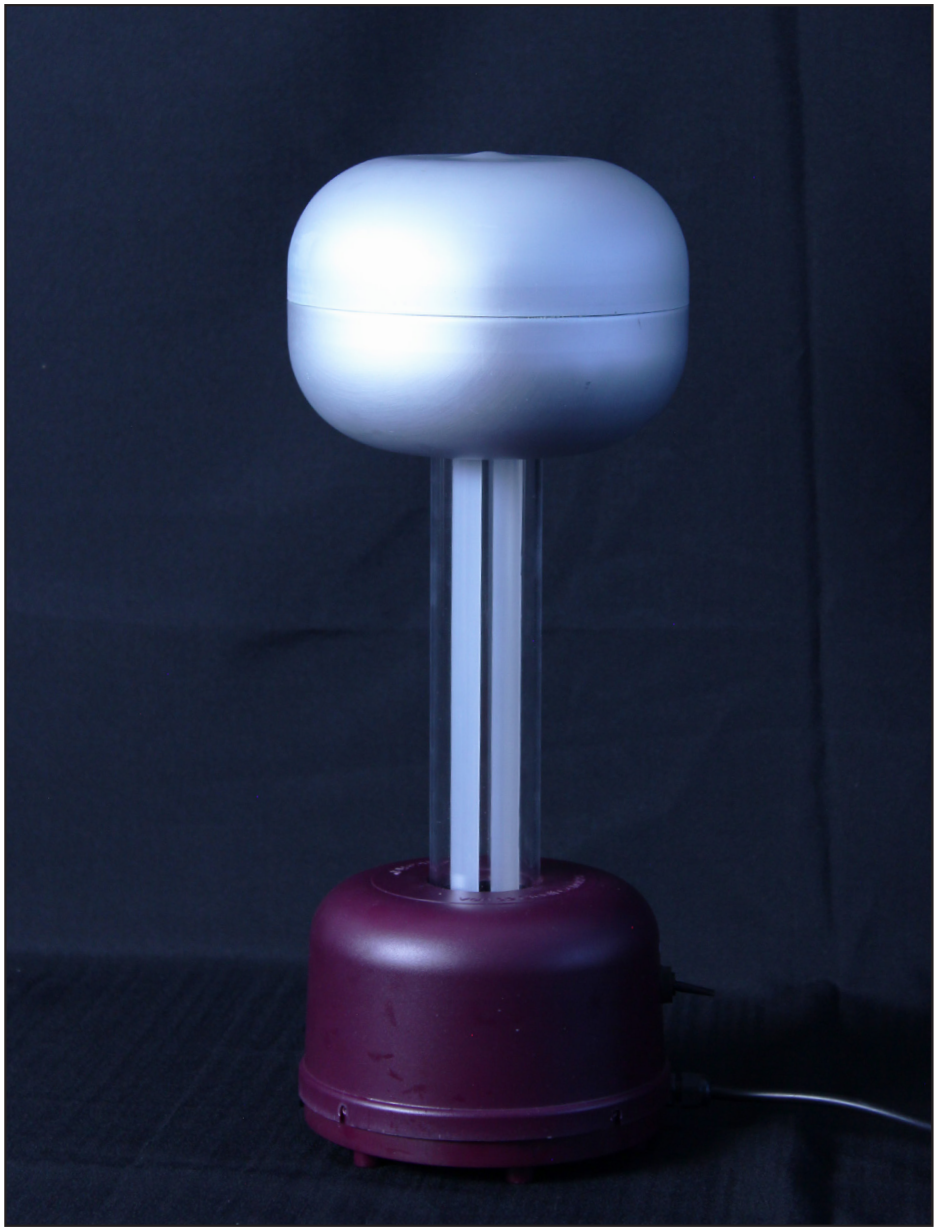
SCIENCEFIRST®

615-3100 VAN DE GRAAFF GENERATOR

PRODUCT MANUAL



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FIND DEMONSTRATION GUIDES, ACCESSORIES, AND MORE FOR THIS PRODUCT AT

SCIENCEFIRST.COM/DOCS

SAFETY

Adult supervision required. This generator is safe when used properly.

Warning:

People with cardiac pacemakers or other electronic medical implants or devices should never operate or come in contact with the generator. Discharge of static electricity could cause the device to be damaged or malfunction.

Caution:

This device is designed to emit high-voltage electrical energy. Do not operate outdoors or in wet or damp locations. Do not operate this unit near any electrical devices, including, but not limited to, cell phones, stereos, tablets, and computers. Science First is not responsible for damage due to improper use.

REPLACEMENT PARTS

Order these and other products at ScienceFirst.com

80-0169 110V Motor

615-3110 Belt (3/4”)

615-3161 Double-pointed spinner

615-3163 Needle-point conductor

615-3164 Accessory adapter

615-3056 Mixed pith balls

ADDITIONAL ACCESSORIES

615-3148 Neon Wand Accessory Package

The Neon Wand accessory package adds three more exciting demonstrations to the standard Van de Graaff. The package includes the Electric Field Apparatus, Ball and Snake demo, and a Neon Wand. With these accessories, you can demonstrate polarization and magnetic fields, electrostatic repulsion and charge retention, and excitation/relaxation of light-emitting particles. Accessories also available for individual purchase, see ScienceFirst.com for more information.

615-3149 Lightning Leaper Accessory Package

The Lightning Leaper accessory package includes three accessories: Volta’s Hailstorm, Lightning Leaper, and an electroscope assembly kit. These accessories demonstrate the principles of electrostatic repulsion/attraction, electrostatic discharge, and electricity’s path of least resistance. Accessories also available for individual purchase, see ScienceFirst.com for more information.

OPERATION NOTES

- **Running the generator:** Flip the switch on the base of the generator to turn it on and off. When finished, discharge the generator using the discharge wand.
- **Discharge Wand:** The discharge wand works best when plugged into the ground port at the base of the generator, but should be used even if the ground port is in use by another accessory.
- **Electric shock:** Although the shock caused by touching the generator is not harmful, it may feel uncomfortable and should be avoided.
- **Humidity:** Best results are obtained in low humidity. We recommend operating at humidity levels of 75% or less. High humidity drastically shortens belt life.

How to Discharge the Generator

Always discharge the generator after operation.

1. Hold the discharge wand by the handle and bring it near the dome of the Van de Graaff. You should hear and/or see a spark. You may need to do this a few times, depending on how much charge has built on the dome.
2. The dome is now safe to touch.

Accessory Plug

- If your accessory adapter does not maintain suction on the dome, try wetting the bottom with a small amount of water before attaching it to the dome.

Visit us online at ScienceFirst.com/docs to find demonstration guides for the Van de Graaff generator and its accessories.

TROUBLESHOOTING

If your Van de Graaff generator does not work, has weak lightning discharges, or low voltage yield, follow the steps below:

1. Check all moving parts to ensure they are functional. Ensure the belt is not twisted and the o-ring is in place.
2. Check humidity. The generator won't work well on high-humidity days. If the humidity is high, use a hair dryer to dry the inside of your generator and dome immediately before operation.
3. Stretch the belt. If the belt is too tight, the generator won't work. Remove the belt and stretch it an additional 6–8 inches several times. Take care not to overstretch the belt.
4. Remove lint from the belt, column, and dome with alcohol a lint-free cloth, then allow to dry (see "Maintenance" for instructions).

MAINTENANCE

Clean the belt after every 50 operating hours using the following procedure:

1. Remove the dome and upper comb assembly.
2. Wet a lint-free cloth with alcohol.
3. Hold the cloth against the belt on the upper pulley.
4. Turn on the generator.

   Note: Static electricity will continue to generate even without the dome. As such, you may feel a shock when performing this maintenance. While the shock is not harmful, if you wish to avoid it, you can remove the belt before wiping it down.
5. Replace the upper comb assembly and dome.