

# Wind Powered Generator

Educational Training Equipment for the 21st Century

Bulletin 230-102H

## H-WPG-1B

### Wind Powered Generator

#### Purpose

The Hampden **Model H-WPG-1B** Wind Powered Generator has been designed to provide the student with the basic understanding of how wind generators function as an alternate source of energy. This system consists of a wind source, an AC generator, control panel with internal battery and base assembly.

#### Description

The Hampden **Model H-WPG-1B** Wind Powered Generator will supply the wind source that will operate the wind turbine. The output of the wind turbine is used to charge a 12 VDC battery mounted inside the control panel. The output of the wind turbine will change depending on the status of the battery. If the battery is fully discharge the full output of the wind turbine will be reached. The terminals of the battery are terminated at the (2) jacks located on the control panel. At this point they can be converted to AC by an internal inverter. By patching the DC jacks to the input jacks of the inverter.

#### Wind Source

The Wind Source consists of a steel enclosed blower which produces a high velocity air flow stream. The blower can be adjusted into different positions to show the effect of different air streams. The enclosure incorporates expanded metal end sections for safety.

#### Wind Generator

Mounted within the enclosure is a wind turbine with exposed internal workings and with the following specs:

<b>Rotor Diameter:</b>	24 inches
<b>Start-up Wind Speed:</b>	7 mph
<b>Rated Power:</b>	400 watts at 28 mph
<b>Regulator Set Range:</b>	12 VDC

The enclosure is provided with (2) Lexan observation windows. The turbine is fully enclosed for safety purposes.

#### Control Panel

The Control Panel consists of a main AC circuit breaker, blower speed control, wind turbine output voltage and current meters, four **Hampden HR-1S** color coded socket receptacles connected



Cutaway view of wind turbine generator



**H-WPG-1B**  
Wind Powered Generator  
Dimensions: 55"H x 60"W x 30"D

to an internal DC to AC inverter, and two **Hampden HR-1S** color coded socket receptacles connected to an internal battery.

#### Bench Assembly

The Bench Assembly supports the previous sections. This assembly contains a 1-3/4" edge grain maple to with steel legs and 4 swivel castors.

#### Services Required

Voltage: 120V AC, 1Ø, 60Hz

#### Option

- **H-WPG-CDL** Computer Data Logging option - Consisting of a hand held anemometer with realtime data logging capability.

All Hampden units are available for operation at any voltage or frequency

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