H30701 Vibration Generator NFU653

Purpose

The Vibration Generator gives mechanical oscillations when fed by signals from a power signal generator capable of driving a low resistance load, such as the Power Signal Generator (G85793). A special high temperature coil system enables the unit to be operated at its maximum rating for a prolonged period without damage due to overheating.

The frequency response encompasses the whole of the audio spectrum and beyond. Electrical input is made via two 4mm sockets and the mechanical output is provided by a shaft terminating in a threaded rod with a pair of clamping nuts.

- Maximum peak to peak displacement: 8 mm at 1 Hz, decreasing with increase in frequency.
- Total frequency range: D.C. to 10kHz.
- Coil impedance: 3.5Ω at 50 Hz.
- Dimensions: 100 x 90 x 95mm high.
- Vibrator can be used in any position, free standing or clamped.

Instructions for use

Carefully unpack the product, ensuring that you retain the small attachment which is pushed into the polystyrene lid.

On observing the unit you will note that there is a slider labelled Unlock/Lock. Ensure this is set to Unlock before using the unit. Always set to Lock after use. You may need to manually adjust the post height to achieve this.

Connection to the Power Signal Generator (G85793) is through standard 4mm plug cables, with one cable from the yellow low impedance socket and one from the black socket immediately to its right. Set the signal generator to sine wave output at about 3-5Hz and turn up the amplitude. You should see that the armature rises and falls at the set frequency. If you see nothing, check that the fuse holder is tightened properly and also check that the fuse is conducting. Replacement fuse is a 1A quick blow 20mm glass fuse, which is readily available.

The frequency, amplitude and waveform can be chosen and altered as desired depending upon the vibration you wish to generate. The vibration generator performs best over the frequency range of 3Hz – 10kHz, which can be adjusted as desired by altering the frequency range dial on the Signal Generator.

Vibration on a string - transverse wave

Push the vibrating armature into the post and fit a thin string into the top, securing with the screw. Run the string over a fixed pulley and hang a 100g mass hanger from it. Now increase the frequency of the sine wave until a vibration is seen on the string. Finely adjust the frequency until you achieve a standing wave. Measure the wavelength using a metre rule and make a note of the frequency. Calculate the velocity of the wave for that particular string tension. Now add a 100g mass to the hanger and repeat. Repeat for additional 100g masses. Please note that you should compare like with like i.e. the same number of nodes on the string.

Does the velocity or wavelength change with increasing mass?

Standing waves on a spring - longitudinal wave

Set a spring vertically between the vibration generator and a retort stand, making sure that the spring is lightly extended. Increase the frequency until you have a single antinode on the spring. Note the frequency and then increase the frequency until the next standing wave occurs. Plot a graph of the no. of antinodes against frequency.

Safety advice

Max input 6V/1A. Dimensions: 100 x 90 x 95mm high. Replacement fuse is a 1A quick blow 20mm glass fuse, which is readily available.

Warnings

For your safety, this product should be used in accordance with these instructions, otherwise the protection provided may be impaired.

This unit is intended for use in DRY conditions. Avoid spillage of water and other liquids on to the unit. If spillage occurs, disconnect the mains supply.

There is no specific requirement for insulation of external circuits as they cannot become hazardous live, as a result of connection to this unit. Limit the length of any connecting leads to 3 metres.

Disposal of Waste Electrical and Electronic Equipment (WEEE)

Do not dispose of this product with household waste

- For the proper treatment, recovery and recycling please take this product to an appropriate collection point.
- If you are unsure where this is, contact your Local Authority.
- By disposing of this product correctly you will be providing positive help to the environment.

Warranty, repairs and spare parts

The Vibration Generator and/or the Accessory Kit are guaranteed for a period of one year from the date of delivery to the customer. This warranty does not apply to defects resulting from the action of a user such as misuse, improper wiring, any operations outside of its specification, improper maintenance or repair, or unauthorized modification.

Our liability is limited to repair or replacement of the product. Any failure during the warranty period should be referred to Customer Services.

Please contact Customer Services or techsupport@philipharris.co.uk for advice

Supplier details

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