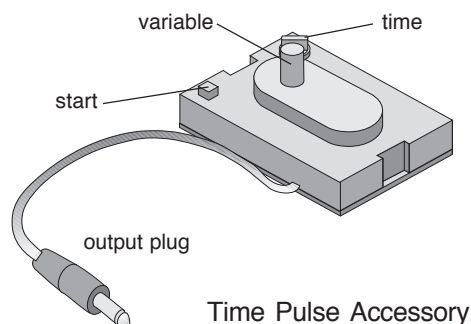


**Instruction Sheet
for the PASCO
Model ME-9496**

TIME PULSE ACCESSORY



Time Pulse Accessory

Introduction

The purpose of the ME-9496 Time Pulse Accessory* is to power the ME-9491 Fan Accessory or the ME-9781 Variable Speed Motorized Cart for a selectable period of time. Since the fan approximates a constant force condition, the Time Pulse Accessory can be used to perform motion studies of a cart under conditions of constant acceleration for a fixed length of time. When used with the Variable Speed Motorized Cart the same kinds of studies may be done under constant speed conditions.

The ME-9496 has three controls; *START*, *TIME*, and *VARIABLE*. The fan or cart *ON* time is determined by the four-position time switch. In the first three positions, fixed *ON* times of 1, 2, and 4 seconds are obtained. When the fourth position is chosen the delay time is controlled by the potentiometer. The potentiometer allows adjustable delays from less than one second to about seven seconds.

When the *START* button is pressed the operator has about two seconds to remove his or her hands from the cart before the fan or cart turns *ON*.

Installing and Connecting the Time Pulse Accessory

As shown in Figure 1, install the Time Pulse Accessory on the Fan Accessory by placing one edge of the case into the plastic "v". While holding the case in this position, drop the other side down and press firmly on

*based on a device developed by Stanley Micklavzina, Physics Department, University of Oregon.

top of the case to snap the other side into its "v". Insure that the Fan Accessory switch is in the *OFF* position (to the left) and plug the Time Pulse Accessory into the Fan Accessory jack. Install 2-4 batteries into the Fan Accessory using "dummy" batteries as desired.

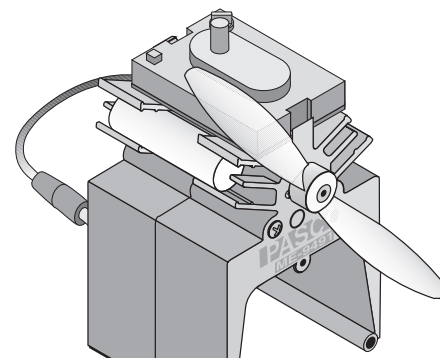


Figure 1. Time Pulse Accessory used with the Fan Accessory

► **CAUTION:** Turn the Fan Accessory *OFF* **before** unplugging the Time Pulse Accessory. Failure to do so will engage the blade of the Fan Accessory upon unplugging.

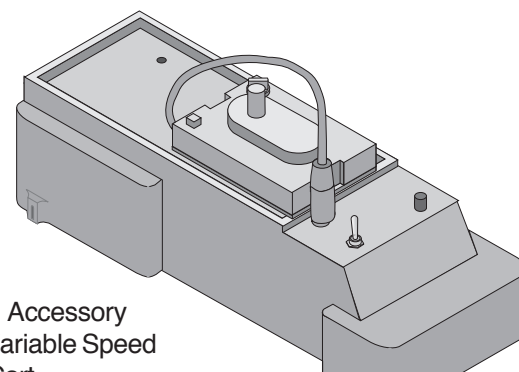


Figure 2. Time Pulse Accessory used with Variable Speed Motorized Cart

The Time Pulse Accessory is installed on the ME-9781 Variable Speed Motorized Cart by locating it by the studs on the bottom of the case in the pattern holes in the top of the Cart. Insure that the Cart switch is in the *OFF* position before inserting the ME-9496 plug. Plug it into the jack provided, as shown in Figure 2.

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► **CAUTION:** It takes only light pressure to actuate the *START* switch.

Test the ME-9496 by switching the time switch to 1 second. Turn the Fan Accessory or Variable Speed Motorized Cart switch *ON* and press the *START* switch. After a two second delay, the device should switch *ON* for one second, then switch *OFF*. The other delays may be tested in the same manner. Remember to turn the Fan Accessory switch *OFF* when testing is completed. If left *ON*, the fan will turn *ON* immediately if the ME-9496 plug is disconnected or after two seconds if the *START* switch is accidentally pressed. When not in use, the ME-9496 cable may be folded and pushed between the ME-9496 and the Fan Accessory.

Using the ME-9496

The ME-9496 is easy to use. Simply set the time switch to the desired delay time according to the legend on the case and press *START*. In the case of the *VARIABLE* control, the time will be roughly proportional to the mechanical setting of the control, from less than one, to about seven seconds. The control has a standard 6mm (¼ inch) shaft if the user wishes to install a knob with a pointer for repeatable tests.

Removing the ME-9496

When removing the ME-9496 from the Fan Accessory, use the following procedure:

- 1) Turn Fan Accessory switch to *OFF*.
- 2) Unplug and remove as shown in Figure 3.

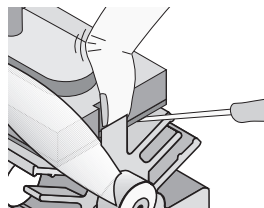


Figure 3. Removing the Time Pulse Accessory

Battery Replacement

The current drain of the ME-9496 is extremely low (typically only a few nanoamps when not triggered). Although the internal coin-cell batteries need to be replaced only when operation becomes erratic, regular replacement of the batteries every 3-4 years will insure that the ME-9496 is always ready to perform its function when required. Remember that fan speed is determined by the external batteries, not the batteries internal to the ME-9496. Unless the internal batteries are known to be old, always check the external batteries and/or their connections before replacing the internal batteries.

► **CAUTION:** The ME-9496 is comprised of devices sensitive to electro-static discharge. Before handling the printed circuit board, touch a grounded metallic surface to discharge any accumulated charge.

To replace the batteries, remove the two screws from the bottom of the ME-9496 case.

The case can then be split apart and the batteries will be seen in their holder. Be careful not to bend the battery clip or the new batteries may not be held securely. Carefully remove the batteries by inserting a small, thin object (like a knife blade) behind the top battery near the clip and sliding the battery out. The second battery should be easily removable at this point. Replace both batteries with the same orientation, “+” sign facing out.

Specifications:

ON times: 1, 2, and 4 seconds, fixed ; <1 to ~7seconds variable

Fixed Time Accuracy: +/- 15%, typically better than 10%

Repeatability: 1%

Peak Current Capability: 7 Amps

Continuous Current Capability: 2.5 Amps

Battery Life: Approximately 5 years

Battery Type: (2) Lithium battery, type CR-1216.

Available as Radio Shack PN 23-269 or PASCO PN 540-033. (Type BR-1216 is an acceptable substitute)

Limited Warranty

PASCO scientific warrants this product to be free from defects in materials and workmanship for a period of one year from the date of shipment to the customer. PASCO will repair or replace, at its option, any part of the product which is deemed to be defective in material or workmanship. This warranty does not cover damage to the product caused by abuse or improper use. Determination of whether a product failure is the result of a manufacturing defect or improper use by the customer shall be made solely by PASCO scientific. Responsibility for the return of equipment for warranty repair belongs to the customer. Equipment must be properly packed to prevent damage and shipped postage or freight prepaid. (Damage caused by improper packing of the equipment for return shipment will not be covered by the warranty.) Shipping costs for returning the equipment, after repair, will be paid by PASCO scientific.

To Reach PASCO

For Technical Support call us at 1-800-772-8700 (toll-free within the U.S.) or (916) 786-3800.

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