

# Babcock

## MARK II SUPER COMPOUND ESCAPEMENT

### INSTALLATION AND OPERATION INSTRUCTIONS

Price 25c

This escapement is a precision piece of Babcock radio control equipment engineered to give long life, trouble-free operation. Designed to operate as an actuating mechanism in any powered model, it offers more power, longer battery life with less weight than heretofore possible.

All necessary installation parts are supplied. Complete satisfaction is guaranteed if accurate installation is made in accordance with the following recommendations. Bear in mind, for control of its four functions, **no sequence of function is necessary**—the same command **always** gives the same control.

While a wide variety of installations are possible, the following more common methods are suggested for best results.

#### INSTALLATION CONSIDERATIONS

Use care to see that rudder and elevator torque rods (see Figure 1) are aligned at right angles to bakelite face of escapement. It will prevent binding. All linkage should be moved manually before installation of control arms to insure freedom of movement. Pay particular attention to control surface hinges.

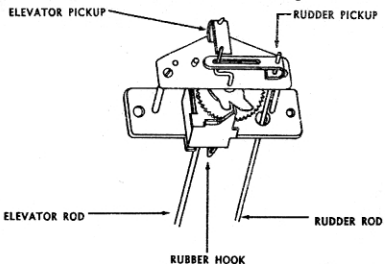


Figure 1

Actuating rubber should lead as straight away from rubber hook as possible. The Mark II is tested to operate on 1/8", 3/16", or 1/4" rubber. Rubber should be about 20% longer than the spacing between escapement hook and tail hook.

Some modelers prefer balsa rods and others use all wire. If using wire, 3/64" is satisfactory on small models — 1/16" on large.

Required voltage for the Mark II is 3 volts. For smaller airplanes, two pencils in series are generally used. For larger airplanes, two "C" or "D" cells will give longer life.

Perhaps the most reliable method of hooking up the batteries is to solder the leads directly. If you do so, be sure to scrape the battery contacts clean. Use a little flux and fast application of a hot iron. Damage will result if the iron is left on the batteries too long.

Battery boxes are convenient to use if they are the right type. They should have spring-loaded contacts and should hold the batteries securely — even under extreme vibration.

If you use some of the newer metal-cased batteries, use a knife to cut away the casing at the negative end. This will expose the zinc negative terminal of the battery which should be used for connections. If this is not done, the steel case may not make firm contact with the zinc under vibration.

#### USE WITH SECONDARY ESCAPEMENT

Figure 2 is a simplified schematic of the compound escapement used with Babcock Universal Motor Control Escapement on third position of the compound.

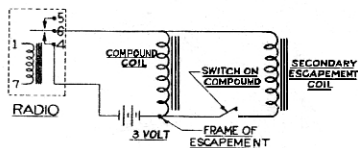


Figure 2

#### USE AS A RUDDER AND ELEVATOR SERVO WITHOUT A SECONDARY ESCAPEMENT

The Babcock Mark II super compound escapement may be used to obtain "right" and "left" as noted, and also "up" elevator on the third position by mounting the elevator linkage as shown in Figure 1. Elevator should be so arranged that when crank arm slips off elevator linkage, following 3rd position, elevator returns to neutral. Thus one pulse and hold is right, two pulses and hold is left, three pulses and hold is up elevator. In all cases the super compound returns to its original neutral position—no sequence to remember. This mode of operation is successfully used in small 1/2A aircraft. Loops and "flared out" landings are easy with this set-up.

## THE 4 FUNCTION COMPOUND ESCAPEMENT CONNECTION

The schematic of Figure 3 shows a satisfactory arrangement used by many modelers. This way a single channel radio will give motor control in addition to above mentioned rudder and elevator functions. It involves the use of the back contact of the relay as shown. In this case, the secondary escapement switch is moved to a new position as follows:

First escapement position is right rudder. With escapement held in this position, bend the switch wire on the shaft so it closes and opens again just prior to reaching right rudder position. Under no circumstances should this switch be closed at the time the escapement has reached the "right" position.

As the schematic indicates, the secondary escapement can work only when receiver relay is deenergized and compound switch is closed. In operation, an extremely short pulse (and release) on the transmitter button will operate the secondary escapement. This operation is as follows: The relay in the radio returns to its back contact. As the compound switch passes closed position an instantaneous pulse operates the motor speed control. Thus an extremely short pulse and release gives a change in motor speed. One pulse and hold gives right, two pulses and hold is left, three pulses and hold is up elevator. In all cases, the super compound returns to the same neutral. Again, no sequence to remember.

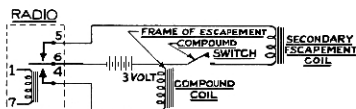


Figure 3

## FOR USE IN MODEL BOATS

The above scheme is ideal for electric propelled boats wherein the Babcock sequence reversing relay replaces the secondary escapement shown in Figure 2. (See sequence reverser instructions for further details on this method of operation.) Alternately the scheme of Figure 3 may be used.

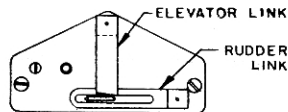
For boats such as the Babcock North Star Trawler or Little Breeze, the super compound can handle the rudder directly even when boat is powered with large electric motors. In this case we recommend 1/4" rubber. The super compound Mark II can handle as much as a double row of knots using 1/4" rubber. In the event the super compound Mark II is used to control a rudder servo, contacts can be placed so the motor runs in a right hand direction when one pulse is given and runs in a left hand direction when 2 pulses are given. Thus, depending upon the length of time these commands are held, the boat rudder will take any desired position.

Many other uses of the versatile Babcock Super Compound Escapement will occur to the ingenious modeler.

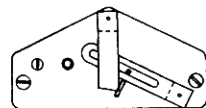
*"The Ultimate in Radio Control"*

**BABCOCK MODELS**  
Newport Beach, Calif.

## Installation of Torque Arms for Rudder and Elevator Controls



NEUTRAL

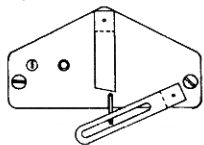


TWO PULSES- LEFT

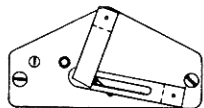
*Solder linkages to torque arms in neutral position as shown.*

*Install stop on elevator surface to prevent it from going below neutral.*

**Important:** *All bearings and hinges must allow free movement.*



ONE PULSE - RIGHT



THREE PULSES  
UP ELEVATOR