

# Instructions for Installation and Operation of *Babcock* Universal Motor Control Escapement

The BABCOCK Universal Auxiliary Control Escapement is beyond a doubt the most versatile device of such type offered to the model builder so far. With the 50 cycles per winding available, it is a completely self contained unit designed to operate on 2 to 3 volts. Due to the highly efficient magnetic design, the resistance of the coil is high while the magnetic efficiency is great enough to utilize the power of a strong rubber band. The high resistance means low battery consumption. The high resistance means low battery consumption. Its extremely rugged design will allow it to be mounted in any position and when used as a self contained unit, it can be wound by the crack pin.

## 1. MOUNTING:

Where a fixed mounting is not necessary, we recommend gluing the sponge rubber pad provided to the escapement and gluing this in turn in the desired position. 3M Trim Cement or "Goo," available in your local hobby stores, is the proper cement for this job. Where a fixed mounting is necessary, there are two alternatives: first, the metal rubber band bracket may be bolted through the appropriate holes using 4-40 bolts; the second alternative is mounting the escapement through the holes provided in the micarta base.

## 2. USAGE:

1. The simplest and fastest installation for motor control is using the single needle valve method (see Figure 1 below). This method requires no alteration of the engine. The easiest procedure of setting up the operation is first running the motor without the "T" connected and setting the mixture to the rich or low speed point. The engine can then be stopped, the "T" connection put in place, and the engine started again. With the air bleed closed, the motor will operate in low speed and, with the air bleed open, the adjustment screw can be turned in to lean or enrich the fuel mixture for high speed operation. It is well to point out that, with use of the bleed valve, the line from the "T" should go as high as possible above the needle valve so that fuel will not drain down to a low spot in the line and render the bleed valve inoperative.

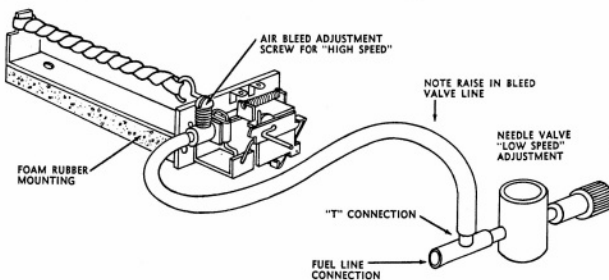


Figure 1

2. The second method of operation (Figure 2 below) is with two needle valves installed in the engine. With this method of operation, the "T" is connected into one or the other needle valve lines. Under this setup, the directly connected needle valve becomes the high speed jet and the "T" connected needle valve acts as a secondary fuel flow or low speed jet. The tuning procedure with this method of operation is to open fully the screw adjustment on the escapement. The engine is then started and run with the bleed valve open. The mixture is adjusted for high speed with the directly connected needle valve. The escapement is then pulsed to close the bleed valve and the second needle valve is then adjusted to provide a low speed mixture.

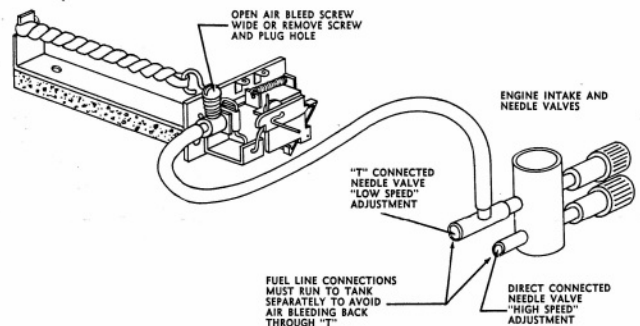


Figure 2

3. The third method of operation is mechanical. Following the basic design (Figure 3 below) it will be found that a  $\frac{3}{4}$  dia. piano wire torque rod will follow a considerable curve in a tube and the escapement will still provide plenty of power. This will allow some mis-alignment between the clapper valve and the escapement, however, the most efficient operation will result with the lowest amount of friction, naturally.

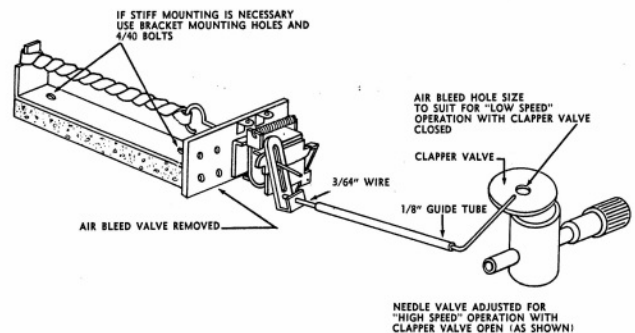
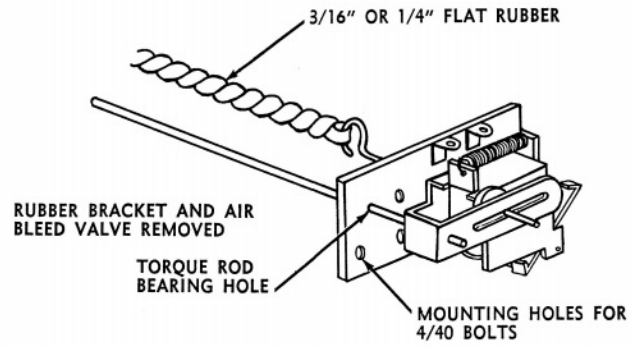


Figure 3

4. The fourth method of operation is use of the escapement as a simple basic rudder control or elevator control. For this use, it may be desired to have several more cycles of operation than the self contained unit can supply. The metal bracket can be removed and the escapement mounted through the micarta base (see Figure 4). The escapement is capable of handling  $\frac{1}{4}$  inch rubber which will provide sufficient torque for almost any operation. It is well again to caution that maximum performance requires a minimum of friction in the torque rods and that any power used by friction in the torque rod bearings or hinge bearings is wasted power. There are many other uses to which this escapement may be put. The above methods of mounting and use will serve as a basis for any installation.



**Figure 4**

*"The Ultimate in Radio Control"*  
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