

Wire linkage from escapement plunges a rubber choke stopper into intake for slow running.

An invaluable idea for motor control with a single receiver. Requires nothing but a few scraps and it works like a charm.

for the

simple motor control

by NORMAN BRISKMAN

► Simplified dual control with a single receiver? Yes it is possible, and it does work and above all it is simple!

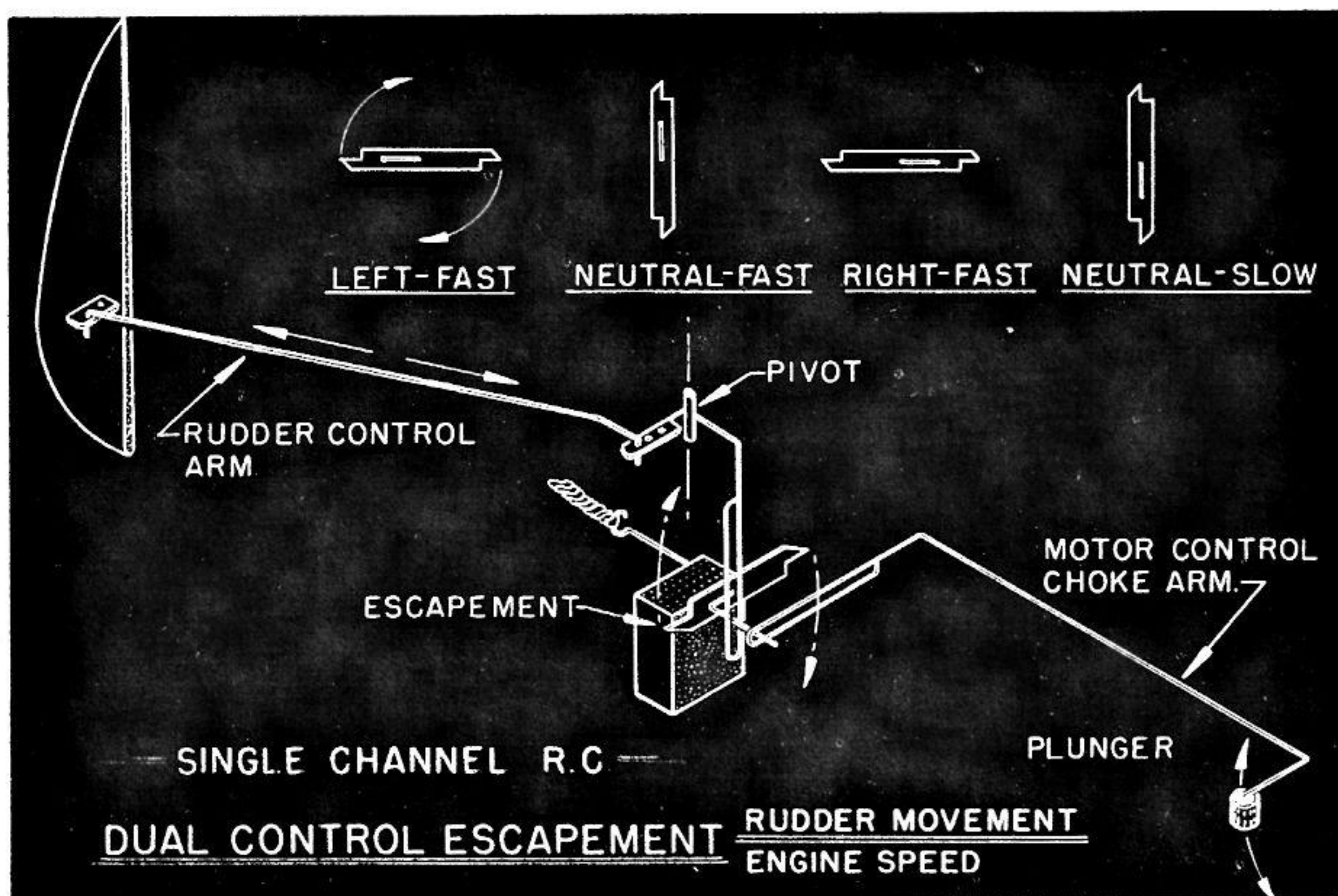
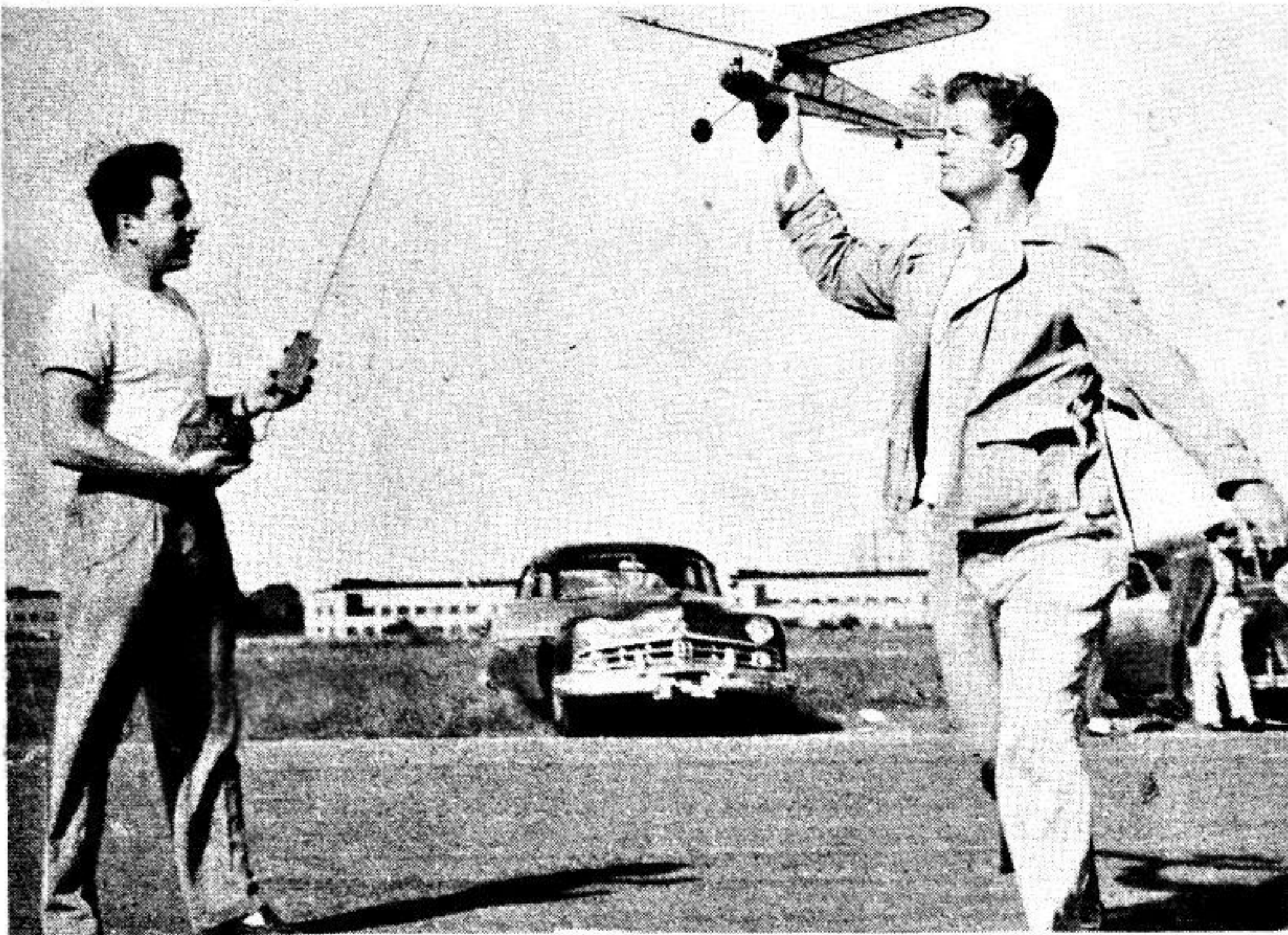
For several months the idea has been kicking around the local "Hobby Hub." The idea was to take the two neutral points of the rudder escapement control arm and make them the control points for the motor, because at those positions the rudder movement was unaffected. You know how the control arm of the escapement rotates from top neutral to right rudder position and then finally back to top neutral to complete the cycle. Well, what we did was to utilize the two neutral positions. We made top neutral position fast motor control, and bottom neutral position slow motor control. In other words, when the escapement's control arm is at right and left rudder controls, the motor control is at neutral (which incidentally can be fast motor control) or medium motor control according to how you adjust the swing or moment arm of the choking mechanism as it has three actual stop positions.

When we had chosen the plane, control became the next point of design. Rudder control? Of course! It has been well established by a majority of r. c. fans that a simple flip of the rudder this way and that will produce some of the neatest turns, spirals, spins, loops, wingovers and a few unnamed stunts.

So with a good portion of directional control taken care of and first proven with a few test flights with the plane, an additional control mechanism was introduced. This to our estimation could only be motor control, the next most effective r. c. addition. Space would not permit another receiver and certainly the weight would be too much. The engine, being an O. K. Cub .099, would not take two-speed ignition control (and two speed ignition we have generally found unfavorable). The remaining variable for the engine was the air intake. So, with a piece of .031 piano wire, a piece of thick walled rubber tubing about 1/4" long and a few drops of solder in the correct place we had "choke control." It was fortunate in our ship that the escapement was mounted well forward in the fuselage for then it was possible to use the same escapement for both controls because it was situated between (Continued on page 53)

Norm Briskman holds the transmitter as Dave Paine launches the two-speed ship with a Cub .09 glow. Adjusts to 3-speed.

Below — Drawing shows simple mechanism described. Only restriction is an escapement that is located amidships.



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them. In our ship we used a wiper arm for movement of the choke control. Every time it came to bottom neutral position it forced the wiper arm down thus plunging the choke stopper into the intake tube. However, a similar arrangement could be used where intermediate controls of speed were desired in right and left turn. Although even this type of movement can be adjusted for only high and low speeds if desired by increasing the moment arm swing.

As small as the engine is, a definite high and low speed was obtained without any cutting out and the adjustment was as easy as changing the needle valve setting. On low speed it just about cruises along. With high speed it really buzzes and does almost everything in the book. You will see in the figure, low speed is only given on one neutral, turns and the opposite neutral are high speed. The fast in turns is to get the spins, loops and wingovers, but it does not affect normal turns, as they are smooth and the 360's do not end up in spins.

Half choke can be had in turns, but more

effectively with larger engines and more for sport flying. This is done by adjusting the rubber cork to travel more critically from high to low, which has three stop points. If low is not wanted, through a run of maneuvers the transmitter can be keyed quickly enough through neutral-low and the following turns to neutral-fast. For you fellows that already have your ship built with one channel and just have rudder control, here's what you can do. You more than likely have your escapement mounted in the rear section of the fuselage. Well that rules out the possibility of using it for motor control because its position is impractical. But here's what you can do. Mount another escapement in the front, as near to the motor as possible. And from this escapement take your choking action, but be sure that it is 90° out of phase with the rudder escapement action. When rudder is neutral motor is either high or low and when the motor is at neutral then the rudder is at either right or left. Sure, this will cost you another escapement, but it will save you another receiver, relay and transmitter. In other words two controls with one channel. It is needless to say that both escapements should be hooked up in parallel or the same places on the receiver relay.

Another interesting possibility is that it would be nice if when you signaled low motor control the plane would actually descend. This is not likely to happen due to the inherent gliding qualities of models; however, why couldn't just enough "down elevator" be given with low motor control to make the ship assume a gentle descent, (of course, you would want no "up elevator" at all). This elevator control could be taken from the same motion as the low motor control and thus they would both be activated at the same time. Three controls on one channel! That's going some. The receiver and escapement are Control Research.