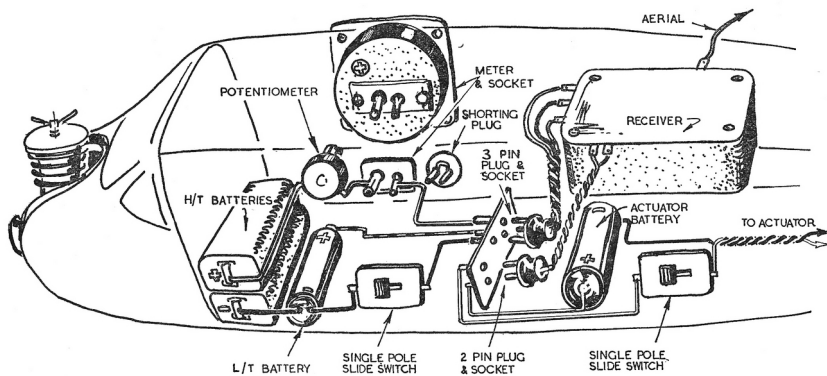


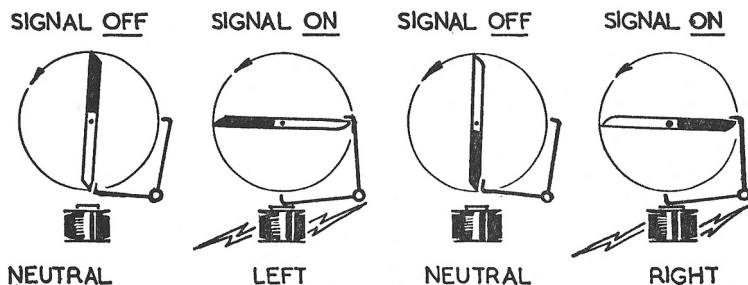
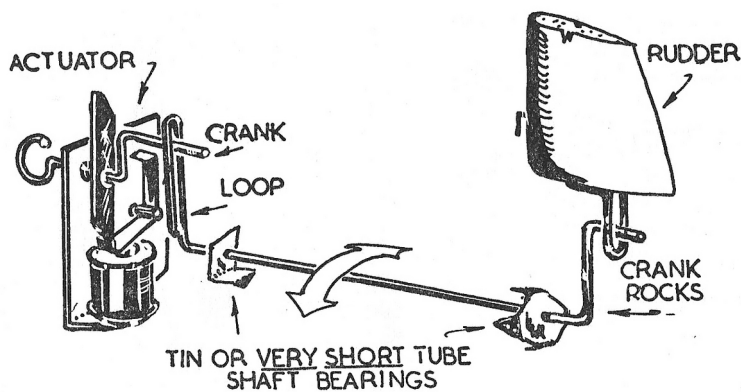
Single channel (rudder only) flying

Maybe you have done single channel flying in the distant past. Or wondered how on earth it was done. I have a copy of the MAP book Simple Radio Control by H. G. Hundleby published in 1957 and of course single channel 27 MHz was the standard then. It was also called 'bang-bang rudder', because there was one button connected by a wire to the transmitter, which was too big and heavy to carry. One press caused the rudder to bang over to full deflection one way, releasing it made it centralise, the next press went fully the other way, and so on.

First a picture of a typical single channel installation. Only the escapement/actuator is missing.



This is what the actuator looked like:



And this is from the book:

As yet we have not discussed the modus operandi of our simple pushbutton control

system. We know that keying once gives either a LEFT or RIGHT turn, and it follows that keying twice returns us to the last signal we gave. We will assume the model is flying straight into wind and that the last signal given was a LEFT. We will further assume that we wish to fly a full circle to the right without losing height. A nice wide steady circle in fact, at least 50 yards in diameter. Apply one signal to give RIGHT rudder and release immediately the nose swings and the right wing drops in a bank.

The model will go on turning right remember for a few seconds and we must be ready to give two signals so as to be able to apply RIGHT rudder again before the model has time to straighten itself. We actually pass through LEFT rudder position so quickly that it has no effect on the flight path whatsoever. Your first efforts at making wide turns by this method will probably be a little ragged but practice and experience will soon produce smooth evenly banked turns that are a pleasure to watch. Take off the RIGHT signals several degrees before you are round into wind again, and leave the model to complete the last segment of the circle on its own. You can now try a wide left turn on the same principle, remembering to fly upwind a sufficient distance to compensate for the distance lost through drift on your first turn.

But what's this? The engine has cut! However, not to worry. We must now prepare for our glide path and landing. The model is nicely up wind and at a height of approximately 200 feet. We apply rudder to give a gentle turn and then let her fly overhead downwind with the control at neutral. The beauty of our self-neutralising escapement is, as the name suggests, the fact that no signal gives NEUTRAL rudder, so that any time we get flummoxed we merely leave the button alone, confident in the thought that the model will end up flying straight and level.

Let the model reach a point some 200 yards downwind of you and then apply rudder until she is flying upwind towards the transmitter. It will be immediately apparent that your amount of control has been considerably reduced. In fact, you will find it necessary to make this turn into wind by holding a signal for what appears an abnormal length of time. The reason being that the slipstream from the propeller is no longer accentuating the effect of the rudder. You will in all probability think that the radio is not working when applying the first glide turn. It seems ages before the nose begins to swing in the desired direction, so do not make the usual mistake of keying again, thinking you skipped a signal, otherwise you will end up turning the wrong way.

Our model at this juncture appears much too high and you will be convinced that it will overshoot. This is how it should be, and we lose height by making a series of S turns to a pattern as in Fig. 3, taking off the last of the turns when the model is some 20 feet up. All that now remains is to keep the nose dead into wind with perhaps a gentle touch of rudder when necessary. Do not worry about spot landing at this stage. Concentrate on landing into wind on a nice even keel, never mind whether you are anywhere near the transmitter. Accuracy of landing at a desired spot will come with extensive practice, your prime purpose at the moment is to learn to fly in a steady and sedate fashion.

By now, your assistant should be alongside the model switching off the set to conserve battery life, and you are ready for the next flight. Or are you? On this particular occasion there will almost certainly be trimming adjustments to be

made, and on all occasions there is our check routine to be carried out before the model can be airborne again. In full size flying a pilot never leaves the ground until he has carried out his routine cockpit drill, so if you wish to enjoy successful and prolonged radio flying, then follow the full size principle. A lot of experienced fliers are going to say that a full check of equipment between each flight is unnecessary, but the author maintains that for 100 per cent, surely it is essential. Certainly all newcomers to the game would be well advised to do so until they have many months' experience behind them.

Cockpit Drill

- 1 Check flying surfaces, wing retaining bands, etc.
- 2 Wind escapement.
- 3 Check receiver with meter in position, observing standing current drop when transmitter is keyed. Switch off, and replace meter with shorting plug.
- 4 Fuel up tank according to flight requirements.
- 5 Start engine and allow at least 30 seconds warming up time.
- 6 Get assistant to lift model from ground and switch on set.
- 7 Check operation with engine running, making sure assistant's hands are well clear of aerial. Give at least six signals and remember the direction of next rudder movement.

Returning to our flying once again— there is one unbreakable law that applies to full size aviation as well as model radio flying. Never try and go round again. In other words if you overshoot by coming in too high, on no account try another full turn unless you have at least 60 to 70 feet altitude. If you do, the model will almost certainly pile in on the down wind run.

You can, after several circuits and bumps, increase your tankage to 3 or 4 mins, and let the model gain more height. Be satisfied on the first few outings with simple manoeuvres, and remember the old motto " It is better to walk before you learn to run ".

There is a technique in making progress upwind. It is to fly at approximately 30 degrees off wind in one direction, followed by 30 degrees off wind in the other direction. Rather on the lines of tacking a yacht into wind. If you have trouble in obtaining penetration then shift the C.G. farther forward.

You have now gained practice and confidence, and for this reason are a bigger menace to yourself and the model than you were on the first solo. Don't forget it! Try holding turns on a little longer (starting from a safe height of course), letting the model spiral downwards. Notice how quickly the turn tightens, and remember that important time lag after you release the button. Apply a little opposite rudder as the model comes out of the shallow spiral dive. Try and judge this so that the model zooms into wind, and then turn it off the power stall at the top of the zoom by a judicious touch of rudder. Make a note that the model spirals faster and quicker in one direction than it does in the other. This characteristic you can use to your advantage in certain aerobatic manoeuvres. Several are given in this Chapter for your guidance in the future, so go to it and—Happy Landings !

And now the manoeuvres

Landing

